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ISSUE 427
March 2023
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NEW HORIZONS

HDRIVE'S HYDROGEN BUS RANGE IS SET TO TAKE AUSTRALIA BY STORM

Operator: Jim Hill **Flashback:** Hydrogen history **Back Seat:** Music bus

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Hanging for hydrogen

Zero-emissions discussions may have originally been all about electric buses, but the rising tide of hydrogen fuel-cell technology is proving to be an enticing option for the local industry.

While the zero-emissions vehicle transition discussion is being dominated by the latest in battery electric bus technology, there's another alternative that is beginning to rise in popularity.

Hydrogen fuel-cell technology, much like its electric counterpart, is certainly no new innovation. Back in 1807, Swiss inventor Francois Isaac de Rivaz filled a balloon with hydrogen and oxygen to create the first hydrogen fuelled vehicle.

Fast forward more than two centuries and heavy vehicles are joining the party. While hydrogen fuel-cell hybrid options have become more and more common for cars, only now are manufacturers and operators beginning to see the potential for this technology in buses in Australia.

Our country's unique climate and terrain begs for a fuel technology that offers the range and refuelling capabilities of hydrogen. Unlike de Rivaz's invention in the early 19th century, modern hydrogen fuel-cell buses are safer than ever before and provide unique ways of extending the range of electric buses.

The March edition of ABC Magazine looks into the intriguing history of hydrogen fuel-cell heavy vehicles, starting with the latest designs emerging from BLK Auto through its subsidiary HDrive. The end result, which graces our cover this month and from page 18 onwards, is an exciting zero-emissions alternative that has already been tested along the rugged hills of Wollongong and outer NSW. If that isn't a stern enough trial for a bus, then nothing is.

We then take it right back to the start of hydrogen fuel-cell buses in Australia. While the concept may seem new to many in the industry, the first hydrogen fuel-cell bus trial down under was actually held in the early 2000s in Perth. Check out the interesting, little-known tale from an integral member of this trial from page 22.

In timely fashion, this edition also coincides with a major milestone in Australia's hydrogen bus market for local manufacturer ARCC, who earlier this month put its hydrogen fuel-cell bus on trial with NSW operator Red Bus Services. See the story on page 27.

As we delve further into the technology, the livelier and more enticing it gets. Learn more about the hydrogen buses that are set to hit our roads through Foton Mobility, who has used 15 years of global experience to tailor its new hydrogen vehicle to Australian operations on page 30.

Much like in the battery electric game, hydrogen fuel-cell technology isn't limited by the vehicle innovation – it's also the infrastructure that requires development. On page 32, Viva Energy is helping fix this problem and encourages hydrogen conversations. It is nearly done designing its historic hydrogen refuelling station and is expecting to commence construction in Geelong, Victoria, later this year.

There's more to this edition than simply hydrogen. In mid-February, ABC launched its Best Bus photo competition. Now, we're ready to crown a winner out of a massive pack of photos sent in. We were also extremely fortunate to sit down with retiring Queensland bus industry icon Jim Hill and discuss his career in the sector (see page 44).

When it wasn't about hydrogen, it was about electric. We visited Victoria's first fully electric bus depot at Ventura Bus Lines' Ivanhoe site and found out just what can be done when it comes to revamping old spaces with new energy (page 42).

> **"As we delve further into the technology, the livelier and more enticing it gets."**

VIVA
Energy Australia
Hydrogen
H2

On the safety side, United Safety & Survivability Corporation's Fogmaker system is ensuring Tassielink Transit's new Scania fleet is safer than ever on page 38.

This edition of ABC shows just how much is happening in the hustle and bustle of the bus and coach industry. We hope you enjoy catching up on another exciting month of news.

Next-generation design principles of electric bus safety

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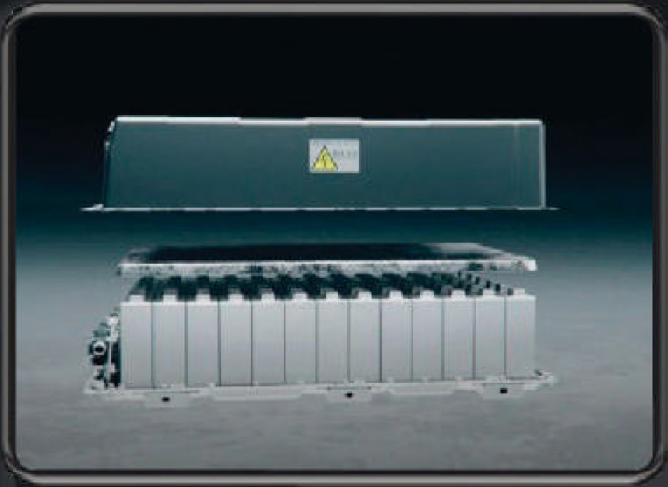
Yutong Electric Safety Standard



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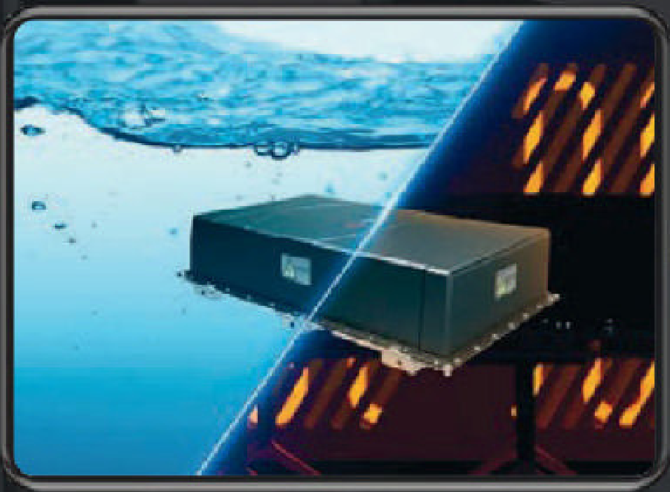

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EDITORIAL
COO: Christine Clancy
ph: (03) 9690 8766
e-mail: Christine.Clancy@primecreative.com.au

Editor: Sean Mortell
e-mail: Sean.Mortell@primecreative.com.au

Trader Transport Managing Editor: Geoff Crockett
e-mail: geoff.crockett@primecreative.com.au

PRODUCTION
Art Director: Bea Barthelson

PRINTING
Brougham Press

ADVERTISING
Trader Group Sales Manager:
James Rock
ph: 0419 139 941
e-mail: James.Rock@primecreative.com.au

Business Development Manager – Bus:
Matt Alexander
ph: 0413 599 669
e-mail: Matt.Alexander@primecreative.com.au

SUBSCRIPTIONS
www.busnews.com.au/subscribe
ph: +61 (0)3 9690 8766 – Mon-Fri 8am-4.30pm (EST)
e-mail: subscriptions@primecreative.com.au
mail: 379 Docklands Drive,
Docklands VIC 3008 Australia

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EXECUTIVE GROUP
CEO: John Murphy
Head of Customer Experience: Regina Fellner
Trader Group Sales Director: Brad Buchanan

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MERCEDES-BENZ BUS PAUSES AUSTRALIAN OPERATIONS

Major bus and coach brand Mercedes-Benz has announced it won't be selling any new products in Australia for the foreseeable future.

ABC can confirm that Mercedes-Benz Bus is pausing operations and the sales of new Mercedes bus and coach products in the Australian market for the foreseeable future, with the Fuso brand unaffected.

ABC heard in February that staff had been made redundant. However, the brand says there'll be a solid ongoing presence available in Australia still working for the company to support existing owners with service and spare parts for years to come while also delivering existing bus and coach orders.

Mercedes-Benz Bus confirmed the pause of Australian operations with ABC last month, yet the brand says it'll continue to support existing bus and coach products in the market with parts and technical support.

The Mercedes-Benz Bus dealership network will also continue to provide service support for customers.

Mercedes-Benz says Fuso buses aren't covered by the pause at all.

The brand says it decided to pause sales because planned future products weren't the best fit for Australian operators.

"Mercedes-Benz Bus prides itself on delivering best-in-class products that meet the very specific requirements of our market," the company told ABC.

"With no such new products available in the foreseeable future, we had no choice but to pause local sales."

THOMPSON BUS SERVICES MAKES COOLUM COACHES ACQUISITION

One of Queensland's long-standing family-owned businesses, Thompson Bus Services, has purchased Coolum Coaches on the Sunshine Coast of Queensland.

The transaction includes 11 buses, nine prescribed school service contracts with the Department of Transport and Main Roads and a modern depot facility at Coolum Beach.

Aside from holding government contracts, the Coolum Coaches business also undertakes significant charter and touring activities.

Coolum Coaches was owned and operated by stalwart Glynn Ross from February 1999 through to completion of the sale in February 2023.

The sale of the business brings an end to 50 years of involvement with the Queensland bus industry by Glynn Ross, an occasion which was celebrated with family and friends of the Ross family, Department of Transport and Main Roads representatives and the Thompson family at the Coolum Beach depot on Thursday February 23, 2023.

The purchase of Coolum Coaches is a strategic acquisition for Thompson's, who now own a fleet of 100 buses across three depot locations and hold significant government contracts in South East Queensland.

Formed in September 1979 by Geoff and Jean Thompson, the family business is currently managed by son Shane Thompson.

"We are really excited to be extending our family business to the Sunshine Coast and the opportunities that brings for us," Shane Thompson says.

"On behalf of the Thompson family, we want to acknowledge Glynn Ross's contribution to the bus industry in Queensland and are very humbled to be the new custodians of Coolum Coaches."

Thompsons will take over one of the oldest transport firms on the Sunshine Coast.

Sunshine Coast Airport
Coolum COACHES

Above: Family-owned business Thompson Bus Services has acquired Coolum Coaches

EXPRESS
52
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ATG DOWNUNDER PULLS OUT OF ALICE SPRINGS

Charter and tour bus business ATG Downunder has announced it has pulled its tour and coach services out of Alice Springs.

The news means ATG Downunder will instead focus on its Darwin operations.

The decision comes after tourism in central Australia is expected to struggle due to a combination of factors, including increasing airfare prices.

ATG Downunder offers a wide variety of services to areas such as Uluru and the MacDonnell Ranges, but the announcement means it will relocate its assets to Darwin.

Coach industry veteran and one of the founding members of ATG Downunder Wayne Thompson says the news doesn't spell the end for the Australian tour and charter operator.

"We have withdrawn to Darwin and are still active in Western Australia," Thompson says in a Facebook post.

"I'm hurting a lot seeing this happen in the centre but I'm sure that the brand will continue onto bigger and better things."

Thompson says the wider company call still offer fly-in workers a job within its other operations.

After returning to Alice Springs in 2013, Thompson helped merge the company and create ATG Downunder.

He says Qantas's decision to pull 30,000 seats out of central Australia made it impossible to guarantee tours and continue operating in the area.

As well as struggling to retain drivers, Thompson says these series of factors all contributed to the decision.

In his post, Thompson says the business resorted to fly-in fly-out (FIFO) drivers after COVID lockdowns, but the NT government's decision to give the contract to another operator at a lower bid hasn't helped.

He says the group was "blessed with many top operators" and extended his thanks to the likes of Russell Harvy, Ronny Johnstone, Dan Phillips, Murray McLeod, Ruka Mukuru, Matty O'Connell and Ben Doolan with their help with ATG Downunder in Alice Springs over the past decade.

Australasian Bus & Coach has contacted ATG Downunder's current management for comment but is yet to hear back.

TRANSIT SYSTEMS EXPANDS NT BUS OPERATIONS WITH NEW ACQUISITION

Australian bus and coach transport operator Transit Systems says it's expanding its Northern Territory operations with the recent acquisition of NT service Grand Touring Operations.

Grand Touring Operations will continue its role of servicing the tourism and commercial industries in the top end while joining Transit Systems' fleet of more than 30000 buses.

Established in 2002, Grand Touring features 28 buses and five trailers and has provided coach and charter services, including all arrival and departure transport in Darwin for passengers and crew off the Ghan, as well as tours across the top end and Kimberley region.

This expansion follows three recent acquisitions for Transit Systems in the past three months, including the company's first Queensland bus service, North Stradbroke Island Buses and Horizons West Bus and Coachlines and Denmark School Services.

Transit Systems CEO Michael McGee says these latest acquisitions see Transit Systems expand expertise beyond urban public transport contracts into education, resources and tourism.

"The Darwin-based operation will play a pivotal role in supporting Kelsian Group's Marine and Tourism Division, SeaLink NT, by offering invaluable land transport solutions for tourism packages and experiences," McGee says.

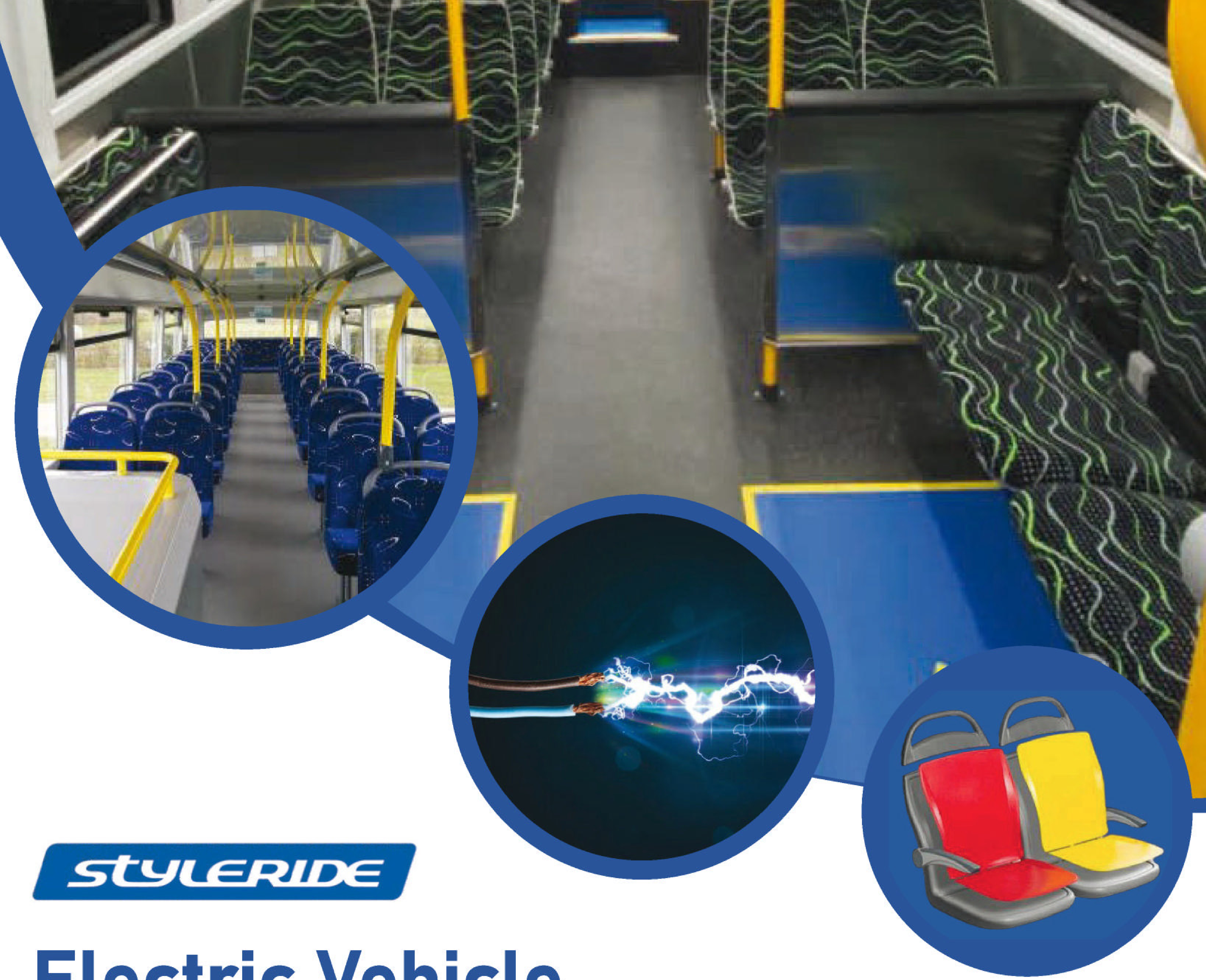
"The Darwin-based business will also allow for additional expansion into the resources and education sector by leveraging local operational assets."

Transit Systems and SeaLink Marine & Tourism are both part of Kelsian Group, operating locally as Territory Transit and SeaLink NT respectively. SeaLink NT operates ferry services from Cullen Bay, Darwin to Mandorah and the Tiwi Islands, as well as sightseeing cruises and tours in the region.

The acquisition is another step forward in the company's strategy to build its bus transport portfolio.

Grand Touring
LUXURY TRANSPORT

Above: Transit Systems recently acquired Grand Touring Operations



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BUSWAYS RETAINS RAPIDLY EXPANDING WESTERN SYDNEY CONTRACT

Australian bus operator Busways will continue to operate bus services in Western Sydney after retaining the region's bus operations following a competitive open tender process.

Busways was awarded the new Greater Sydney Bus Contract 1 by the NSW government earlier in February in a deal commencing in December 2023 for the next seven years.

It will see Busways transporting eight million passengers on nearly 1.1 million bus trips a year, operating more than 350 buses at the Penrith, Blacktown and Mulgrave bus depots as well as continued delivery of the award-winning Cooee Busways On Demand service.

Busways managing director Byron Rowe says the decision recognises Busways' proven performance delivering high standards of customer experience, safety and service innovation.

"We appreciate the NSW government backing an Australian operator and are thrilled that 80 years after we first started running passenger transport services in Blacktown in 1942, we can continue to serve customers in our Western Sydney heartland," Rowe says.

Since October 2013, Busways has been operating all bus services in Region 1 after taking over from a consortium including Busways, Hawkesbury Valley Buses and Westbus that ran the region from 2005.

"In the past 10 years we've invested heavily in the Western Sydney network, with a substantial capital works program including two brand new, state-of-the-art smart depots at Penrith and Mulgrave, installation of electrical charging infrastructure to support the roll-out of zero emissions buses (ZEB), fleet improvements and 12 zero-emissions buses into service in Penrith, among many other improvements," Rowe says.

"Partnering with Transport for NSW, we've also improved customer experience by introducing nearly 40 timetable improvements since 2013 and establishing Sydney's popular On Demand service in The Ponds in 2019.

Above:
Busways is going from strength to strength after retaining its Western Sydney contract

"Under Busways management, overall customer satisfaction with the bus network has increased by 20 per cent over 10 years to 94 per cent in 2022 and patronage grew by 36 per cent, outpacing population growth."

For the next seven years Rowe says Busways will continue to focus on delivering world-class bus passenger services to the Western Sydney community.

NEWCASTLE TRANSPORT BEGINS JOURNEY WITH FIRST ELECTRIC BUS

Newcastle Transport has begun an exciting journey of energy transition with its first zero-emissions bus hitting the road.

The electric bus will be run by operator Keolis Downer. Keolis Downer Hunter general manager Emmanuel Genlot says it's great to see zero-emissions technology on the road in Newcastle.

"You will see the zero emission bus looks very similar to the buses already on the road, but customers and the community will notice some differences," Genlot says.

"Customers will notice a quieter and smoother ride, while the community will benefit from reduced emissions and better air quality,

"With zero emission buses now on Newcastle and Lake Macquarie roads, it will further promote the benefits of public transport and give Novocastrians another reason to leave the car at home and get onboard."

"Keolis Downer is proud to partner with Transport for New South Wales to transition Newcastle to a zero emission public transport future."

NSW transport and roads minister David Elliott says the bus will be the first permanent electric model introduced in regional and outer metropolitan NSW.

Newcastle Transport will launch another two zero emission buses in the coming weeks.

2902
GLENDALE
2902

Above:
The very first Newcastle Transport electric bus was recently launched

KINETIC EXPANDS IN TASMANIA WITH NEW ACQUISITION

Kinetic has completed another acquisition in south-east Tasmania as it continues its growth in the state.

Kinetic has secured an agreement to acquire Tasmanian bus operator O'Driscoll Coaches Derwent Valley Link, which operates 10 government contracted services including school bus and general access services between Hobart and the Derwent Valley.

A family owned company, established by Peter and Erica O'Driscoll in 2006, O'Driscoll Coaches operates 33 buses across three depots and employs 42 Tasmanians, all who will be offered continued employment with Kinetic.

NEW NORFOLK X22
VIA GLENORCHY
40
DERWENT VALLEY LINK
XT 60AU

The acquisition further expands Kinetic's presence in the south-east of Tasmania and as a key transport delivery partner for the Tasmanian government, with its network in Tasmania now including 252 buses and 272 people.

Since launching SkyBus at Hobart Airport in 2018, Kinetic has welcomed new bus operations to its network including Redline Coaches, MerseyLink, Saintys and East Tamar to become a leading privately-owned government bus contractor in the state.

Kinetic is investing in a more modern bus fleet and improved driver facilities with a capital investment program of approximately $10 million planned for Tasmania in the next 18 months.

The works include an overhaul of Kinetic's Hobart depot, upgrade of the transit centre in Hobart and relocation of the transit centre in Launceston and introduction of new vehicle livery and uniforms reflecting Kinetic's brand.

Kinetic is also delivering positive impacts to local Tasmanian communities through its partnership with the Rob Fairs Foundation and providing transport services for the Special Olympics in October.

Kinetic Co-CEO Michael Sewards says the acquisition will benefit the local community with Kinetic's focus on enhancing outcomes for the community.

"Peter and Erica have built a business focused on service excellence and the local community and we look forward to continue their legacy as we welcome the team into the Kinetic family," Sewards says.

"Buses will play an essential role in Tasmania's public transport network and tourism industry now and into the future and as key economic precincts continue to grow, the demand for reliable, safe, clean and green bus services will only increase."

Peter O'Driscoll says he's proud of what he and Erica achieved in delivering better bus services for Derwent Valley locals and says Kinetic's acquisition would present opportunities to take the customer experience to a new level.

"Over the years in the bus industry we've built many wonderful relationships with our employees and life-long friendships," O'Driscoll says.

"Kinetic is well known for its commitment to the local communities in which it operates. We are confident Kinetic will build on our achievements and deliver positive outcomes for our employees, our customers and the local community."

The transaction was completed in February.

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GOVERNMENT RELEASES PROPOSALS FOR TWO NEW ADRS

The HVIA says two new ADRs have been proposed for zero-emissions vehicles.

The Heavy Vehicle Industry Australia (HVIA) says the federal government has released two proposed Australian Design Rules (ADRs) for consultation relating to the safety of electric vehicles and hydrogen fuel cell vehicles.

The two proposed ADRs include ADR 109/00 relating to electric power train safety requirements and ADR 110/00 for hydrogen fuel cell vehicle safety related performance.

The ADRs will be applicable to all zero-emissions vehicles of vehicle categories MA, MB, MC, MD, ME, NA, NB and NC.

> **"The HVIA says both proposed ADRs address safety issues in areas of high voltage as well as the high-pressure storage systems associated with hydrogen fuel systems."**

The HVIA says both proposed ADRs address safety issues in areas of high voltage as well as the high-pressure storage systems associated with hydrogen fuel systems.

The purpose of the ADRs will be to ensure the safety of zero-emissions vehicles, including the protection for occupants, first responders and the wider community.

The HVIA says ADRs 109/00 and 110/00 will harmonise with the relevant international standards, including UN Regulations Number 100 and 134 respectively.

The proposed application dates include November 1, 2023 for all new model vehicles and then November 1, 2024 for all vehicles.

The HVIA says new ADRs for electric vehicles and hydrogen fuel cell vehicles propulsion systems technology have been prioritised due to strong advocacy by industry and other stakeholders.

The Office of Impact Analysis has assessed the introduction of these ADRs as unlikely to have more than minor regulatory impact.

Therefore, no impact assessment has been prepared and the consultation is limited to the relevant ADRs and associated Explanatory Statements.

These instruments are open for public comment from February 1, 2023 for an eight-week period.

Members were requested to provide any feedback by COB March 27, 2023.

THE WOT!?!

SPECIAL DRIVER WINS AWARD

When Leo Pham decided to swap his baking passions for a career as a bus driver, he wasn't to know how loved he would be. Now, 15 years on, ABC News reported that Pham was named Outer-Metropolitan Bus Driver of the Year for his friendly customer service skills and attention to detail. He says bus driving was an easier option than maintaining his baking passions, but still recognises the serious nature of driving buses on the road every day. Pham received the award from BusNSW late last year in the Illawarra.

GRUMPY DRIVER LISTS ANNOYING PASSENGERS

Unfortunately not all bus drivers are cheery. In London, a bus driver has gone on a rant, listing their three types of passengers that they can't stand. Bus driving TikTok poster Nadine Bassey says she can't stand 'blind' passengers who ask where the bus goes when the sign on the front says where it is travelling. She then says she can't stand the 'confused' one who can't understand how contactless payment worked and ultimately held up passengers queueing to hop on. Lastly, Bassey's comedy skit described the 'broke' one that never has enough money for the fare and breezes straight past the driver.

BUS TRIPPING AROUND ASIA

When Nina Schakat's father died, she decided to partner with her partner Kai and two kids and buy an old bus to tour Asia. A van was too small, meaning the German-born family living in Dubai bought an old bus from an Indian vehicle manufacturer for $6,000 and converted it into a motorhome. From there, the family of four took the bus around Asia after putting it through its paces on a test drive. The family shipped the bus to Iran, the group of four took the perfect family holiday in grand style.

FIRST FULL SIZE AUTONOMOUS BUS CARRIES PASSENGERS IN THE UK

The United Kingdom's first full size autonomous bus has carried passengers for the first time as part of its testing process in a major milestone for the project.

In late January, Stagecoach, the UK's largest bus and coach operator, successfully transported its first group of passengers in a ground-breaking trial in East Scotland.

The project, named CAVForth, which is part funded by the UK government's Centre for Connected and Autonomous Vehicles, will be the first registered service in the UK to use full sized autonomous buses.

A fleet of five Alexander Dennis Enviro200AV vehicles will cover a 14-mile route, in mixed traffic, at up to 50mph across the iconic Forth Road Bridge from Ferrytoll Park & Ride, in Fife to Edinburgh Park Transport Interchange.

Once registered, the service will operate a frequent timetable with the capacity for around 10,000 journeys per week.

As part of the extensive testing process, Stagecoach invited a group of passengers from its Co-Design Panel to travel on the route to get feedback and share improvements ahead of the full public launch of the service in the spring.

The Co-Design Panel is a diverse group of local bus users who have volunteered to help Stagecoach and its project partners design how an autonomous bus service should work. Their insights and advice have informed key aspects of the autonomous vehicle trial. Examples of how they have supported the project include:

- The introduction of a 'bus captain' in the saloon to reassure and help passengers with their queries, boarding and purchasing their tickets.
- Helping develop the eye-catching livery to stand out on the on the road.
- The design of communications and marketing materials which aim to build trust and share what to expect from the service in a simple, understandable way.

Above:
UK citizens enjoy the area's first autonomous bus trial carrying passengers

Fleur, who joined the panel through a forum for young people, says: "This is something I never thought I would be involved with. I've really enjoyed having the opportunity to share my opinions and bring my thoughts forward - and it's brilliant to see it come through and become this actual thing from a few drawings!

"It was quiet exciting, the thought of getting on for the first time, I wasn't worried at all about it - you wouldn't know the difference between this and a normal bus from the driving."

BRITISH BUS COMPANY ORDERS MORE THAN 100 ELECTRIC BUSES

Passengers in Oxford in the United Kingdom will benefit from a brand new fleet of zero emission buses on the city's streets later this year, following an order placed by The Go-Ahead Group for 104 electric vehicles.

The deal is Go-Ahead's biggest electric bus order to date, adding to the group's 350-strong fleet of plug-in buses across Britain. It's a further step towards a goal of a zero-emission fleet nationwide by 2035.

The order will comprise five single and 99 double-decker buses, to be manufactured in Northern Ireland by Wrightbus, and all vehicles will be fitted with free customer WiFi, at-seat USB chargers and audio-visual next stop announcement systems as standard.

Eight of the double-decker buses will be open-topped to support the company's popular City Sightseeing tour route and once all buses are in service all local bus routes wholly within the Oxford urban area will be converted to zero-emission operation.

ELECTRIC BUSES
ARE COMING TO
OXFORDSHIRE!

Above:
Oxfordshire locals will soon be riding on electric buses

Go-Ahead is investing more than £30 million in the buses, alongside funding from Oxfordshire County Council and from the Department for Transport's Zero Emission Bus Regional Areas (ZEBRA) scheme. This is part of a total package of £82.5 million of funding for 159 buses for operators in Oxford, which will become one of Britain's leading electric bus cities.

The buses are part of a package for bus travellers in Oxford. Passengers will benefit from faster journeys with the installation of several new traffic filters in the city, an expanded zero emission zone and additional bus priority schemes implemented in Oxfordshire.

The buses will save an estimated 6,000 tonnes of carbon dioxide emissions each year – the equivalent of taking more than 3,900 cars off the road.

"This is a fantastic day for bus passengers in Oxford. We're proud to be ordering a fleet of state-of-the-art, UK-made electric buses which will be cleaner and healthier for local residents, and offer a quieter, more comfortable ride for customers," Oxford Bus Company managing director Luke Marion says.

The mobilisation of these buses will see Oxford Bus Company become the second largest bus operator of zero emission buses within the Go-Ahead Group. Once on the road in late 2023, it will bring the total number of zero emission buses within the Go-Ahead Group to 456.

BUS INDUSTRY SUMMIT

2023

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Advocating for sustainable and viable local manufacturing

BIC's Supplier Group meeting delved into the many ways to improve local manufacturing.

The bus and coach industry is navigating a challenging landscape, with rising costs and increased pressure to reduce emissions and improve efficiency. To address these challenges and ensure the industry's sustainable and viable future, the Bus Industry Confederation (BIC) is actively advocating on behalf of the sector.

On February 14, 2023 at the BIC Suppliers Group meeting, attendees discussed a range of pressing issues facing the industry. One of the main concerns discussed was the cost price squeeze, which is affecting manufacturers and suppliers' sustainability. The CPI has risen to 6.2 per cent, which is significantly higher than the 20-year average of 2.7 per cent, making it challenging for businesses to maintain their profit margins, as some businesses risk running at a loss. Additionally, the rise in wages of 3.4 per cent in 2022, the highest annual increase since 2012, has further increased cost pressures. The increase in producer prices, which hit an all-time high of 123.20 points in Q4 2022, is another factor driving up costs, and predictions indicate that producer prices will continue to rise in 2023.

These inflationary pressures compound the challenges facing our suppliers and manufacturers in relation to skills shortages and the inability to attract and retain suitably qualified or experienced staff. In addition, capped price contracts, manufacturers not being paid until a complete bus is delivered, supply chain issues and international freight mean that the sector is facing the perfect storm.

> **"We all benefit from local manufacturing. We need to act to ensure that bus manufacturing in Australia does not go in the same direction as car manufacturing did."**

The Suppliers Group meeting and subsequent discussions with industry leaders, including the BIC Council, have identified a range of strategies for the BIC to pursue in association with our members. A multi-pronged approach is required given the seriousness of the situation.

Firstly, we are actively advocating to the federal government for assistance and support in several areas including targeted immigration, federal funding support for shipping costs, training and skills development. We are seeking a commitment to a National Bus Manufacturing Plan like the work being undertaken for the rail industry.

The state and territory governments are also a target of our advocacy. It is vital that we get them to recognise the serious inflationary pressures on cost of materials and labour and include rise and fall variations in contracts.

We also need to start what may be a difficult conversation with bus and coach operators. Bus manufacturing is the only industry we are aware of where the manufacturers are paid on the delivery of the final product – a product typically built to order. In every other industry, such as in construction, there is a deposit and then progress payments. This change in payment process will assist with cash flow and will help to ensure the sustainability of our manufacturers and suppliers. It means that the suppliers of parts used in the early manufacturing stages can be paid early in the manufacturing processes not many months, and up to a year, after they have supplied their products to body and chassis manufacturers.

The time for this conversation is now. We need to ensure that we have a strong, sustainable bus and coach manufacturing sector in Australia. We have governments committed to local manufacturing and we have the transition to zero emissions underway. We are also riding the wave (or should that be bus) of increasing consolidation of bus operators across the country. Changing payment schedules for larger companies should be an easier proposition than for our smaller operators.

We all benefit from local manufacturing. We need to act to ensure that bus manufacturing in Australia does not go in the same direction as car manufacturing did.

The BIC Suppliers Group meeting provided an opportunity for the industry to discuss challenges and opportunities for growth and innovation. The BIC is committed to working with suppliers, bus operators, policymakers and other stakeholders to address the industry's challenges and create an enabling environment for the sector's sustainable and viable future. The BIC will continue to advocate for policies that support the growth of the industry and encourage innovation to address emerging challenges.

DRIVING A GREENER FUTURE

It's all systems go for zero-emissions bus and coach distributor HDrive. The Australian distributor of Wisdom models is finding there are many benefits to hydrogen fuel-cell vehicles on local roads.

WORDS SEAN MORTELL **IMAGES** BLK AUTO/ HDRIVE

In days gone by, hydrogen vehicles would be met with trepidation. Yet the sheer amount of tough testing that goes into hydrogen fuel cell buses and coaches means these models are now among the safest vehicles in the market. Throughout its journey, zero-emissions vehicle distributor HDrive puts its hydrogen fleet through arduous testing before it's even allowed out of a factory.

As the exclusive distributor of Wisdom Motors' range of zero-emissions vehicles in Australia, New Zealand and many other countries, HDrive is continuing its proven history of carbon neutral transport.

"In China there are nine different manufacturing areas that internally people rank, with number one being where the top tier vehicles are manufactured," HDrive general manager Ben Kiddle told ABC. "Wisdom is situated in the top tiered development zones, meaning it gets the best engineers and an amazing factory that has massive land space."

This area allows Wisdom to do something that many other manufacturers can't. When new vehicles are made, they are taken out to a huge test track that also includes water and undulation strips to test each prototype vehicle to breaking point.

HDrive ensures its vehicles are designed specifically for Australia's harsh and operationally demanding requirements to provide the best and most reliable products in the market.

The test vehicles are then made to travel for 10,000 kilometres around the track before being taken to the other two strips. The water test track ensures all electrical systems onboard a zero-emissions bus are properly sealed before they go to the undulation strip.

"I wouldn't take a four-wheel drive over the undulation track with all of its bumps and jumps," Kiddle says. "The prototype vehicles get punished before they can be sent to Australia as HDrive products.

"It's the difference between our factory in China and others in the world."

HDrive's growing range of emerging models fill Kiddle with great confidence when they hit Australian shores.

HDrive first started in Australia when BLK Auto managing director Jason Pecotic deployed 10 hydrogen fuel-cell coaches into Western Australia's Fortescue Mine sites. Pecotic has been focused on

Hydrogen Bus
HDrive

> Electric vehicles can struggle to have enough power to keep going after getting up this climb, but this is where HDrive's hydrogen fuel-cell applications come to life as they can handle the high speed and grade.

developing new energy vehicles for the Australian market ever since and now has a range of up to 23 hydrogen fuel-cell and battery electric commercial and passenger transport vehicles from HDrive.

HDrive is a subsidiary business to Pecotic's BLK Auto. The latter distributes Bonluck buses, unlike HDrive's partnership with separate manufacturer Wisdom. The two companies may have different manufacturing backgrounds, but Kiddle says they have shared resources in Australia, including aftersales and parts deployment.

Shareholders of Wisdom include Ballard, who Kiddle says is the world's largest and most well-known fuel cell provider, and Templewater. HDrive's vehicles use a wide range of Ballard's hydrogen fuel cells, including its latest FCmove platform that can sit on the roof of a bus or can be fitted as a packaged unit where a traditional bus would have its engine bay.

Entrepreneurial investment partner Templewater is also a shareholder of Wisdom, giving the brand a wealth of resources to draw upon with its range.

HDrive started working directly with Australian operators in October 2021 to understand exactly how vehicles are utilised within their operation. Its testing and consultation resulted in the concept of two different bus designs for the local market – a city bus that is only utilised in low speed route service and a second option for vehicles that operate at a higher speed and climb steep elevations.

Kiddle is in charge of the range testing on high speed demands up and down mountains to confirm that the latter of HDrive's vehicles are ideal for local customers.

"I tested HDrive vehicles along Mount Ousley between Sydney and Wollongong on the most demanding hill in Australia," Kiddle says. "It's 14 and a half kilometres in length and up a 10 per cent grade, meaning it requires a huge amount of torque demand.

"Electric vehicles can struggle to have enough power to keep going after getting up this climb, but this is where HDrive's hydrogen fuel-cell applications come to life as they can handle the high speed and grade."

Above: HDrive general manager Ben Kiddle

Below: HDrive's range varies in application, power source and size

Opposite, Top: HDrive's unique double-decker bus came to Australia late last year

HONG KONG
HDrive
Driving a Greener Future

Kiddle says current diesel powered vehicles in operation need to be capable of route service from Monday to Friday. When there is also additional scheduled trackwork or charters, the vehicles then must be able to spring to life and operate longer services requiring higher speeds while taking on difficult terrain. HDrive has vehicles and solutions that cater to these varying requirements.

HDrive's extreme Australian testing means Kiddle can put his hand on heart and say that HDrive's bus range is fit for purpose in local conditions to meet the operator's needs.

HDrive's passenger transport range currently sits at nine vehicles, with plans for further Australian expansion on the near horizon for the growing zero-emissions brand.

The distributor's hydrogen products start with its FC75 hydrogen minibus. The seven metre smaller option includes a flip-out wheelchair ramp and is Disability Discrimination Act (DDA) compliant to allow easy access for customers.

Kiddle says the FC75 is HDrive's flexible option – it can be used as a 13-seat vehicle or it can be extended

Powered by BALLARD
H2ONG KONG
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Hydrogen Bus
HDrive
ing a Greener Future

The HDrive double-decker was trialled at Shellharbour Regional Airport alongside other zero-emissions models

> It requires no charging infrastructure, just a tube trailer to fill it up. I fuelled it myself in Wollongong – I just ordered gas cylinders, connected the gas hose and away it went.

to eight metres long and hold 22 seats. With a top speed of 80 kilometres per hour and a range of 300 kilometres, Kiddle says the FC75 is the ideal zero-emissions replacement for the current minibus range.

"It's comfortable and easy to drive," Kiddle says. "With an ageing population the FC75 becomes so valuable as it can have hundreds of wheelchairs piled onto it to take everyone to bingo night.

"It's perfect for on-demand services, pubs, clubs and private school charter runs. It is refuelled in around two minutes and it's a good entry to the zero-emissions market for those who don't want to commit to a larger model."

The minibus is available in both electric and hydrogen fuel-cell options. The hydrogen minibus features tanks in the rear of the vehicle, taking the length to eight metres with the battery electric version starting at seven metres with a charge time of around one hour.

Next in HDrive's fleet is its FC120 12.5 metre low floor city bus. The EV120 is the electric version, while the FC120 is a hydrogen low-floor option, with both coming in a 45-seat configuration.

Kiddle is excited to formally launch the FC120 low-floor model in Australia – he believes the price point will pleasantly surprise many potential customers wanting to buy a zero-emissions bus.

"The FC120 low-floor model is currently priced at around $800,000," Kiddle says. "Previously the price in the market for this kind of hydrogen bus sat at around $1.2 million, so for people to see that the price has reduced a fair way should encourage them to make the leap to hydrogen buses."

The FC model is HDrive's premier hydrogen model and isn't limited to just the FC120 – the FC120C is a similar 12.5 metre option that's ideal for coach, school bus or mine transfer applications. Alongside the FC120C variant is the FC120DD 12.5 metre double decker which is known as the Hong Kong Hydrogen Double Decker.

Kiddle says the FC120DD has since been affectionately known in Wollongong as the Hong Gong Shuttle after it was transported to New South Wales's Shellharbour Regional Airport last year from Hong Kong to be shown to the local industry.

The double-decker bus was loaned from Hong Kong transport operators to HDrive last year for one month, with the distributor pouncing on the opportunity to show the novel model to operators and government officials in Illawarra, New South Wales.

The idea behind the trial day was to give the local industry a hands-on taste of how hydrogen fuel-cell buses work and showcase the quality that HDrive can offer Australian operators. HDrive wanted to show the industry that hydrogen technology is real and is ready to be deployed in Australia.

"It was a thrill getting the double-decker FC120DD bus launched in NSW last year," Kiddle says. "It was originally built to be trialled in Hong Kong to replace electric vehicles that had trouble being integrated into larger fleets due to a supply issue when it came to local grid power opportunities.

"The vehicle was a marketing campaign and went through stringent safety tests to prove Hong Kong was ready for hydrogen fuel-cell buses. We were lucky to have it in Australia for a month before it went back to Hong Kong at the end of last year."

When it was brought to NSW, Kiddle and other government officials, key operators and stakeholders got to drive the double-decker on the runway at Shellharbour Regional Airport. Kiddle says they all gave the vehicle the thumbs-up.

"It drove beautifully and had no body roll in it," Kiddle says. "If the New South Wales government talks about putting in a dedicated bus route between the proposed new Sydney airport and the current one then this bus is perfect for that application.

"It requires no charging infrastructure, just a tube trailer to fill it up. I fuelled it myself in Wollongong – I just ordered gas cylinders, connected the gas hose and away it went."

The next year is all about growth for the newly formed distributor in both the truck and bus sectors. When it comes to the former, HDrive is already taking strides after signing a five-year supply deal with Pure Hydrogen and Wisdom for up to 12,000 trucks over five years. Now, alongside BLK Auto, the procurement of hydrogen buses remains critical in Australia.

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HONOURING HYDROGEN

Nearly 20 years ago, a little known hydrogen fuel-cell bus trial was run in Perth. The first large trial of this technology in Australia set the wheels into motion for zero-emissions public transport to become a reality. However, it was never taken up.

WORDS SEAN MORTELL **IMAGES** SIMON WHITEHOUSE

When Simon Whitehouse was first tasked by the Western Australian government to run a hydrogen fuel-cell bus trial in 2004, he had little idea of what he was getting himself into. So little, in fact, that he needed his high-school student kids to provide foundation information.

"I had never heard of a fuel cell," Whitehouse told ABC. "When the WA government told me they were going to buy three fuel-cell buses to run on hydrogen and that they wanted me to design the trial, I had to ask my kids what a fuel-cell was."

This fact-finding mission with his kids meant Whitehouse was soon caught up to speed on how hydrogen fuel-cell bus technology worked, allowing him to devise a plan to operate three Daimler hydrogen fuel cell buses in Perth and to gain information about how the same buses worked in other public transport networks around the world.

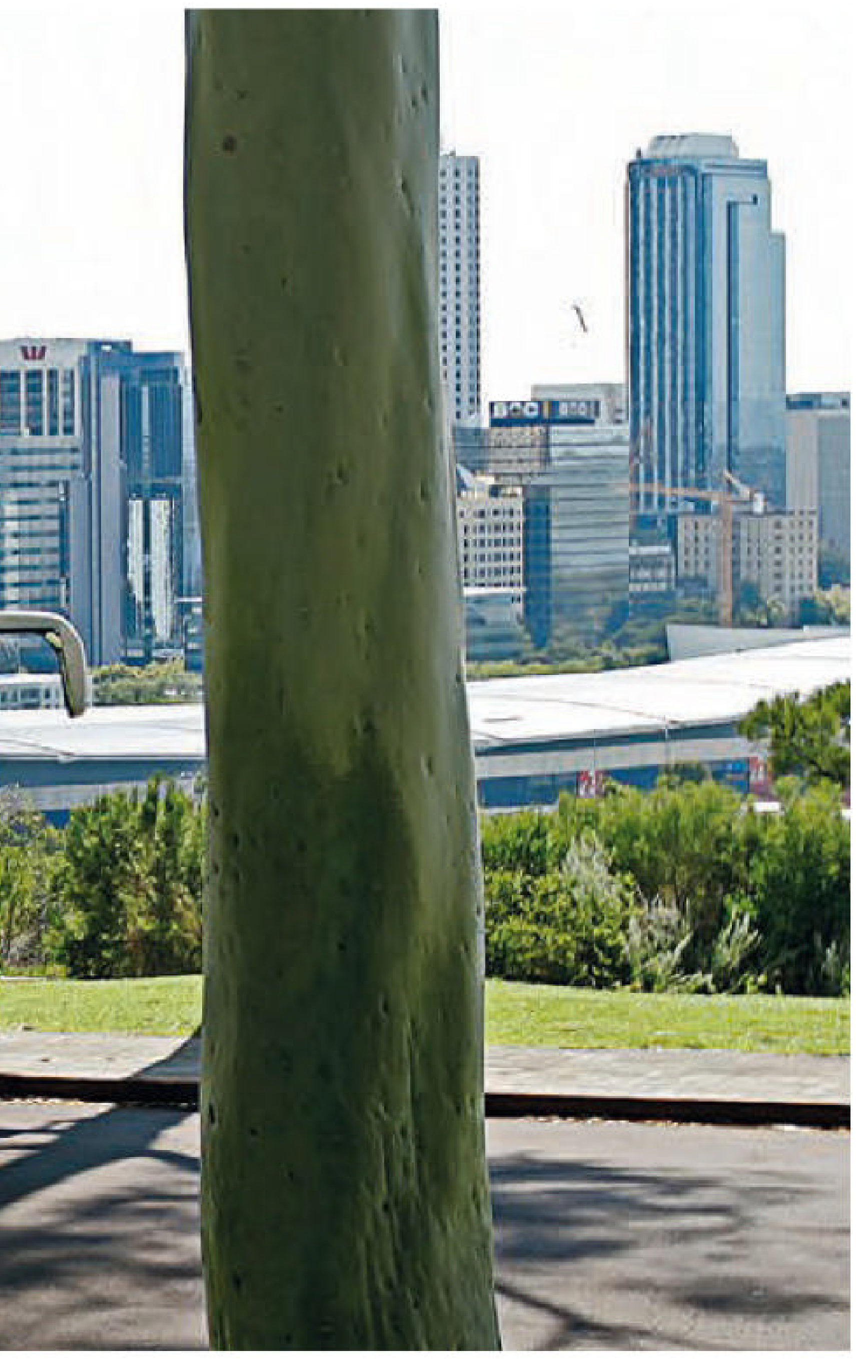
Whitehouse's trial, which would come to be known as the Sustainable Transport Energy for Perth (STEP) project, wasn't the only one of its nature occurring in the world in 2004. At the same time, the Clean Urban Transport for Europe (CUTE) was running while the Ecological City Transport System (ECTOS) was also going ahead in Iceland.

In total, the three projects involved 33 Daimler Citaro hydrogen fuel-cell buses and a range of different hydrogen production and refuelling solutions in 11 cities around the world, with Perth being the only Australian city to trial these hydrogen vehicles.

After spending time with Daimler engineers and scientists for several years, Whitehouse prepared himself to run the STEP trial in conjunction with CUTE and ECTOS on the other side of the world.

"It all started when the WA government at the time was purchasing a new fleet of conventional buses and Daimler officials told them about the new technology that they'd been developing in Europe," Whitehouse says.

"WA then joined the ECTOS and CUTE projects to operate the new buses. This was done with the agreement of the European Commission that we would run the three hydrogen bus trials parallel and share all information and data between the projects.



"Hydrogen fuel-cell technology isn't new – it's been around since the 1850s and has been used in space travel. But this trial was new in the sense of hydrogen fuel-cell technology being used in mobility and on public transport buses."

Key parameters were mapped for the project. The trial, which Whitehouse planned, designed and initiated, wasn't designed to test the optimal efficiency of the buses. Instead, the project was designed to test the fuel cells and balance of plant in the drive train under full public transport operational conditions.

The operating environment in Perth was very different from any other trial site with much higher temperatures, faster speeds and longer runs. The objective was to see what the maximum number of hours the technology could operate for, as well as measuring the availability and reliability of the vehicles.

Above: One of the first hydrogen fuel-cell trial buses takes to a ramp

Opposite, Top: The Daimler hydrogen vehicles operated in and around Perth

Below: bp helped provide the hydrogen refuelling for the STEP trial

bp hydrogen
bp hydrogen

The trial would run for just over four years after starting in 2004. Although the project is barely known in the Australian bus and coach industry to this day, Whitehouse says the trial was highly successful in measuring the Daimler Citaros' performance and exchanging information with the other two projects.

"It was a hugely crazy time because we had no idea how much it would cost at all," Whitehouse says. "We had no local partners to start with other than Daimler and had no clue what we needed or how and where the buses would work."

Such is the way with novel projects like the STEP trial, there were immediate challenges. When the WA government made the deal with Daimler, a slight communication issue meant Daimler's sales staff in Germany didn't know they'd sold the three buses to WA. Whitehouse was promptly sent on a plane to Germany to find out as much as he could about the buses before the trial began.

With a background in environmental management, Whitehouse grew to love the trial as it fed into his passion for the potential future of mobility. After learning about the Daimler vehicles, Whitehouse helped find and develop the hydrogen to use in the fuel cell from offtakes in WA's fuel refinery.

At this time, BP came on board as the hydrogen production and refuelling partner and was a key support throughout the project.

The trial's standards stipulated that the hydrogen had to live up to the 'five nines' standard, meaning the hydrogen had to be 99.999 per cent pure with some contaminants being zero.

When it came to finding a local operator to run the trial for them, Whitehouse's life was made a lot easier when Path Transit agreed to the project.

"Path Transit was bloody brilliant throughout the trial," Whitehouse says. "They were enthusiastic from the start in assigning a mechanic to travel to Canada to the fuel cell manufacturer, Ballard, to learn about how to maintain and repair them. They were also happy to modify their workshops and provide a safe working environment for the bus maintenance."

Yet a challenge that is well-known today reared its head. Just as Whitehouse had

Despite its success, the REST trial never eventuated into a full-time fleet of hydrogen fuel-cell public transport buses in Australia

orchestrated all elements of the trial, the Perth public raised their voice.

Whitehouse says the STEP trial faced a campaign of objectors who didn't want a hydrogen fuel-cell depot in the area. Over the course of 18 months, Whitehouse held discussions with the local shires and community as well as the Environmental Protection Agency (EPA) to dispel hydrogen myths and educate the WA people on the benefits of hydrogen technology.

"As this was a novel trial, people had some bizarre views on technology and hydrogen," Whitehouse says. "Hydrogen is an extremely light gas, but people were convinced it would leak out and some said it would percolate into the ground water and poison wells.

"We also heard people saying that hydrogen tanks on buses would explode and become missiles and torpedos."

Alongside designing the trial, Whitehouse combatted this issue by running public education programs for schools, communities, drivers and mechanics, with the end goal to have bus drivers trained as ambassadors of the technology.

The STEP program may not be a household name now in the bus and coach industry, but that doesn't mean it didn't have success. Whitehouse says the global trial between the three programs were all successful, with Perth shining ahead of the rest. He says the STEP trial recorded the best fuel economy and the highest reliability and availability with its buses compared to the other two programs.

"The public perception was also really good," Whitehouse says. "Both the drivers and passengers loved them. The public's response says they were willing to pay more for clean and silent technology which was heart-warming.

"One of the best stories involved a driver who was heading down the Stirling Highway and a group of ladies stopped and applauded as he drove past."

The success of the technology in all the sites around the world and the great community response left Whitehouse very surprised when Daimler decided to change its strategy at the end of the trial. In 2007, the STEP trial with Path Transit came to a close and the WA government agreed to end the fuel-cell bus presence in the state.

Since then, Whitehouse has had calls from consultants who view the trial as a failure. Others don't even know about the program and its groundbreaking results in the southern hemisphere.

The only issue with the project came with the hydrogen refuelling infrastructure. In an issue that's still rearing its head now, Whitehouse says the design and reliable operation of the hydrogen refuelling infrastructure was highly problematic and continues to be with most hydrogen refuelling operations around the world.

"I'm confident this will only get easier for the industry now," Whitehouse says. "The vehicles nowadays are so much more efficient and reliable, so hopefully the technology can develop so that refuelling doesn't remain as the weak point."

Despite all of these challenges and the end result, Whitehouse wouldn't change anything to do with the STEP project. His main disappointment revolves around the fact that clean mobility policies and technology never developed in Australia, as can be seen by the absence of broad vehicle emission and fuel standards.

These absences have meant that Australia is effectively at the back of the queue for clean vehicle technology such as hydrogen fuel-cell and electric buses.

Whitehouse is lamenting that the effort to clean Australia's vehicle fleet has not kept pace with the rest of the world.

He's still working towards the end goal that the STEP project first opened his eyes to nearly 20 years ago.

"The trial was absolutely awesome despite being extremely difficult and challenging in many ways," Whitehouse says. "I don't know what's in the long run for hydrogen fuel-cell technology in Australia.

"Looking back, to see the development of the vehicle technology at the time was so exciting. I just hope that Australia catches up soon and recaptures the brilliance of hydrogen fuel-cell buses."

> Looking back, to see the development of the vehicle technology at the time was so exciting. I just hope that Australia catches up soon and recaptures the brilliance of hydrogen fuel-cell buses.

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HYDROGEN HEROES

Australian manufacturer ARCC has reached a major milestone. As its first hydrogen fuel-cell chassis enters the trial stage in NSW, ARCC is continuing to reach for the stars when it comes to zero-emissions transport.

IMAGES ARCC

It's been seven years since Aluminium Revolutionary Chassis Company (ARCC) first began working on its novel approach to building zero-emissions vehicles.

As it continues to raise its profile in Australia, ARCC has produced a prototype full electric city bus chassis and a hydrogen fuel-cell version. The latter is set to transform zero-emissions transport on New South Wales's Central Coast from March onwards.

"With the launch of our hydrogen fuel-cell chassis in the Central Coast in late February, we said we've become an overnight success after seven years of work and effort," ARCC managing director and founder Peter Murley told ABC.

"We can now deliver unique, market-leading zero-emissions vehicles that are performing far above our expectations. It's a credit to our whole team."

The hydrogen fuel-cell Hydrolight bus is now set to prove itself on Australia's roads, with the first prototype being delivered to Bateau Bay's Red Bus Services. Red Bus will run a trial of hydrogen fuel-cell bus technology using ARCC's local chassis design.

Alongside trial partner Origin Energy, ARCC will supply the technology to Red Bus to run from March 6 until the end of June 2023.

The Hydrolight, which has begun transporting NSW passengers, has plenty in common with ARCC's electric version – both weigh up to 20 per cent less than most competing zero-emissions buses. But unique design technology developed by Murley and his team means the two buses are more similar than one might initially think.

"Our zero-emissions vehicles are agnostic to a powertrain," Murley says.

"Whether it's a battery electric or hydrogen bus, our technology means from the roof down it's essentially the same vehicle.

"It's all about future proofing. Battery electric buses are the technology of choice currently, but when practical solutions and commercial metrics around hydrogen storage and refuelling are found, then customers can lift off our battery electric module and mount the hydrogen module with the process taking around a day and a half and requiring limited software changes."

This revolutionary concept has taken seven years of consultation with a variety of different engineered solutions to develop. It's resulted in a bespoke architecture where ARCC combines chassis and body solutions to make scalable bus models for the local market that also lend themselves to creating opportunities for export.

ARCC's model involves a front, middle and rear modular concept that bolts together to create a zero-emissions chassis and body combination. The structure, made fully from aluminium, comes in both electric and hydrogen models to provide multiple fuel source options.

Murley says the Australian-manufactured buses' design has more benefits outside of their tailorable nature.

"Our goal is to have a considered and structured approach to manufacturing this

> "We think we've enhanced this design and added a different line of thinking – there's nothing in the world currently that replicates what we've achieved in the past seven years."

technology," Murley says.

"Our architecture is unique because it's agnostic to running gear. We currently work closely with Scania and have integrated their running gear into our Viking models.

"Our vehicles have 16 tonne and 18 tonne variants. We've been able to engineer the 16 tonne version so that it doesn't compromise passenger numbers even with the lower gross vehicle mass (GVM). This very much fits with the ARCC ethos of doing more with less."

Alongside Red Bus, Transit Systems and ComfortDelGro (CDC) have also been confirmed as launch partners to trial ARCC's local technology. Murley says first deliveries are scheduled to begin midway through this year, with ARCC planning to open its order book to government and private sector customers by the end of April.

Murley is hoping that the industry will jump at the novel design after seeing them run as part of NSW's first hydrogen-powered electric buses on the Central Coast.

"We see ourselves as a technology business, not just a bus one, so our modularity is where we'll expand our current model scope," Murley says.

"What we've done with hydrogen can be applied across other applications like trucking, mining and civil work, so we'll continue partnering with educational institutions to develop the transition of operators' existing staff to the zero-emissions future while also engaging in the development of the future workforce across aligned industries in Australia."

ARCC's prototype hydrogen bus has been linked with a sophisticated telematics software to allow both ARCC and Red Bus to track the trial vehicle at all times. After running the trial on the Central Coast, ARCC then has trials lined up in Victoria to run two hydrogen buses to spread the word of its capabilities.

Murley says the trial with Red Bus comes at a prime time to show the Australian transport industry that supporting refuelling and charging infrastructure is pivotal to growing the zero-emissions vehicle space.

"Australian manufacturers have made fantastic buses in the same way for years," Murley says.

"We think we've enhanced this design and added a different line of thinking – there's nothing in the world currently that replicates what we've achieved in the past seven years."

If the latest hydrogen fuel-cell model follows ARCC's previous vehicles, then Murley is confident his company can be at the cutting edge of a hydrogen and battery electric bus revolution. In the past, Murley was part of the group responsible for providing the first electric buses that were delivered to Sydney Airport seven years ago.

The Blue Emu buses continue to perform efficiently and reliably. Murley says many of his learnings from delivering those buses formed the genesis for the innovations in the ARCC buses we see today.

With ARCC's ability to switch between battery and hydrogen powered systems, there are opportunities for ARCC when bus batteries eventually need replacing. Murley sees the opportunity to repurpose the batteries and place them in homes or commercial applications to give them a second life.

All of this will complement a further three prototype aluminium chassis that ARCC is developing, with technology being engineered for hydrogen fuel-cell and electric propulsion.

Yet ARCC isn't getting ahead of itself. Murley is confident in the technology and testing that he has tweaked throughout the years. Now, he's looking forward to seeing how they fare on NSW roads and the reaction they receive from the local bus industry before he worries about the manufacturer's expansion plans.

"We think we're well-placed – we're impressed with the hydrogen model's comfort levels, how it rides and its lightweight nature that positively impacts its performance on Australian roads," Murley says.

"We've seen the range of the bus only increase. After Red Bus trial it, we're certain the range will significantly lower the cost for operators who won't need similar amounts of charging or refuelling infrastructure as seen in other models.

"I'm proud to have led ARCC to the point where we can deliver a unique and market leading zero-emissions vehicle that utilises world-class technology and design to win recognition and support."

Above: ARCC's Peter Murley

Below: The hydrogen module is part of ARCC's bus technology

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REDEFINING REFUELLING

Foton Mobility's hydrogen fuel-cell low-floor city model achieved a major milestone on its way to operating on Australian roads when it passed ADR testing last year. Now, the distributor is well on its way to making its hydrogen network dreams a reality.

IMAGES FOTON MOBILITY

When Transit Systems Australia (TSA) first investigated ways to introduce hydrogen fuel-cell buses into its Australian operations, Foton Mobility was a key candidate.

Foton Mobility may be relatively new in its journey as an Australian-owned zero-emissions heavy vehicle distributor, but it draws on the extensive experience of Foton Motors China, who have been producing hydrogen buses since 2008.

While in Australia hydrogen fuel-cell buses are part of a sweeping zero-emissions change, Foton Motors has manufactured more than 1,100 hydrogen buses globally, including more than 450 that were put into service during the recent Beijing Winter Olympics.

All of Foton's experience has been put into procuring Foton Mobility's first fleet of hydrogen fuel-cell buses for Australian operators, with TSA placing the first order for two of the proven low-floor city buses.

"Hydrogen is not new technology for Foton, we've been dealing with hydrogen fuel-cell vehicles for quite some time," Foton Mobility national sales manager of buses Greg Abel told ABC.

"With Australia moving towards zero-emissions vehicles, Foton Mobility was established to deliver high-quality hydrogen fuel-cell buses and battery electric commercial vehicles."

In 2021, Foton Mobility commissioned its first commercial hydrogen city bus in Australia.

Abel says Foton Mobility CEO Neil Wang was behind the initiative to introduce Foton's global expertise in hydrogen transport systems to Australia.

To introduce the hydrogen city bus into Australia, Foton Mobility had to meet rigorous requirements, including getting it Australian Design Rule (ADR) approved.

Foton Mobility began working behind the scenes to get all of its testing and systems compliant with Australia's standards and conditions, including meeting Transport for NSW (TfNSW) Panel 3 and Disability Discrimination Act (DDA) specifications and achieving EC79 Certification.

Halfway through 2022, Foton Mobility had both its hydrogen fuel-cell and its battery electric models ADR approved in a major boost for the distributor.

"TSA set a high bar in relation to specifications, particularly those involving safety," Abel says.

"It was an opportunity for us to ensure our systems were the best they could possibly be. We made sure that Foton Motors, as a manufacturer, complied with all requirements and produced the safest vehicle possible."

When it hits Australia's roads, the hydrogen 12.5m low-floor city bus will have plenty of benefits for operators. The two-door model contains approximately 26.5kg of hydrogen via eight hydrogen tanks and an additional 150kwh CATL battery storage.

With a Toyota SinoHytec fuel cell, Abel says the range of the bus is between 400 and 500 kilometres.

Efficiency is a major consideration for Foton Mobility. Abel says the hydrogen bus uses approximately six kilograms of hydrogen per 100 kilometres.

"The hydrogen model is suitable for most low-floor city route bus services," Abel says.

"The fuel-cell bus can be re-fuelled in roughly 10 minutes compared to the hours it takes to recharge a battery-electric bus."

The extended range and greater operational efficiencies make the hydrogen model ideal for urban transportation, particularly those operating greater distances.

Abel says this technology provides a real alternative for the local market, with infrastructure challenges in the electricity sector providing an opportunity for hydrogen vehicles to become a valuable part of the Australian bus and coach industry.

"Foton Mobility is convinced that there will be a place in the Australian market for hydrogen vehicles due to the costly infrastructure required in the electric vehicle sector," Abel says.

"We believe that challenges involved with electric buses can be overcome with hydrogen vehicles, as hydrogen can replace the current diesel deliver, store and refuel model.

"The reason why we decided to bring hydrogen vehicles to Australia is because we see room in the market for both battery electric and hydrogen fuel-cell applications," Abel says.

Having gained full ADR approval, the low-floor bus is now waiting on a decision regarding deployment before being delivered to TSA.

Abel says when the vehicles are delivered, Foton Mobility will provide technical support and safety training to ensure operation and maintenance is at the highest possible safety standard.

When they begin operating, Abel hopes the models will be a ringing endorsement of the benefits of hydrogen as a fuel source.

"There are certainly areas in Australia where hydrogen would be best suited," Abel says.

"For us, it's about working within the transport and hydrogen industries to look for opportunities where our vehicle can be deployed to benefit the community."

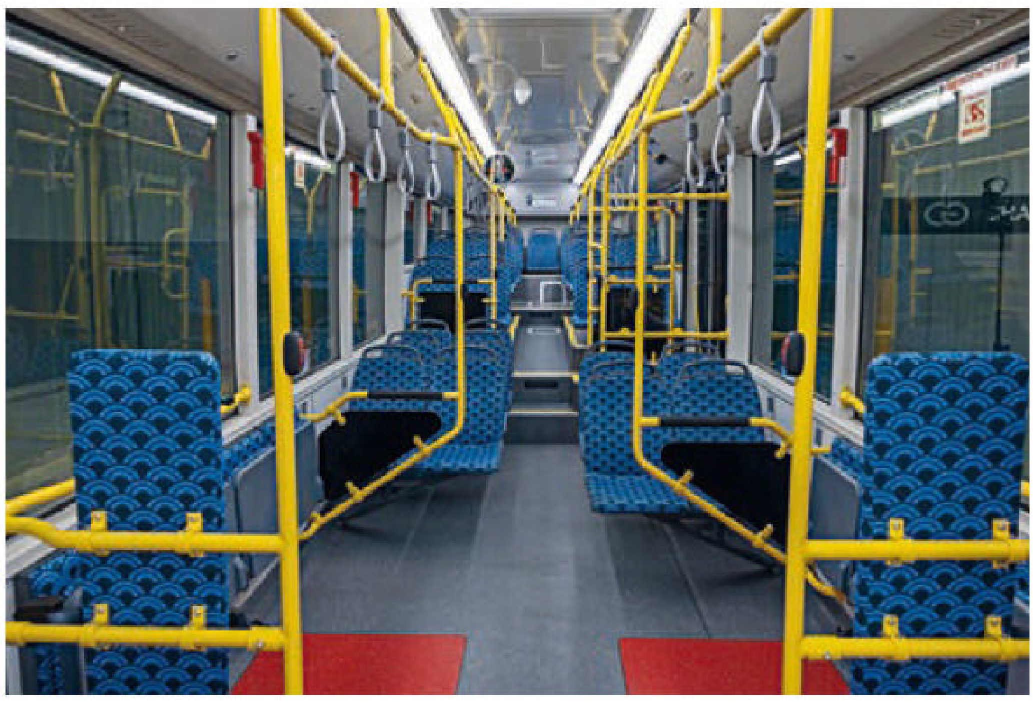
Abel says the emergence of its hydrogen fuel-cell bus model in Australia is proof that the distributor is committed to the local market well into the future.

He says the project of introducing the hydrogen vehicle down under has been "detailed and extensive", but getting the model ADR approved is proof that the bus will be suited to Australia's unique conditions.

Once the bus begins operating for TSA, Foton Mobility has grander plans to expand its hydrogen fleet in Australia.

With its vast network of partners, Foton Mobility will continue working with hydrogen suppliers and refuellers to ensure the infrastructure and vehicle suppliers work collaboratively.

In the near future, Abel hopes this hydrogen initiative will develop into a sophisticated network of training and educational partnerships that develop local technology.



Above: Foton Mobility is excited about the imminent deployment of its hydrogen fuel-cell bus down under

Opposite: The first Foton Mobility hydrogen bus will come courtesy of a partnership with Transit Systems Australia (TSA)

"Foton has extensive experience and leading technology when it comes to hydrogen, and its venture into the Australian market proves Foton globally has a lot of faith in the emerging technology in Australia," Abel says.

"We're not just bringing vehicles to market, we believe it's equally as important to introduce our knowledge, experience and technology to Australia to help develop hydrogen fuel-cell vehicles down under." ■

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VISIONARY VENTURE

For nearly four years Viva Energy has been developing its hydrogen ambitions and the result of its hard work will be on display later this year with the construction of its first hydrogen refuelling station in Geelong.

VIVA
Energy Australia

IMAGES VIVA ENERGY

In 2022, Viva Energy announced it would lead change in the zero-emissions sphere, determined to initiate an Australian hydrogen heavy vehicle revolution.

Last year, it announced it would open a service station in Geelong that would provide power for hydrogen fuel-cell electric vehicles in heavy vehicle fleets.

Now, as we move into 2023, construction is about to begin at Geelong in the first tangible step in Viva Energy's goal to create a hydrogen highway of refuelling outlets along Australia's eastern seaboard.

It is an ambitious project that brings together green hydrogen, a fleet of hydrogen-powered electric heavy vehicles, high-speed hydrogen-dispensing equipment and a group of Viva Energy's commercial customers keen to replace diesel-powered trucks and buses with emissions-free vehicles of the future.

Since the announcement in 2022, Viva Energy's Head of Hydrogen and EVs, Sandra Lau, has dedicated her efforts into designing and planning the historic refuelling station to make the dream come true.

"The key part of Viva Energy's business is supplying transport fuels and more recently our customers are looking for a partner to help them transition to lower carbon options," Lau told ABC.

"To do so, we knew we needed to develop our existing knowledge of hydrogen into different applications to help us make hydrogen fuel for buses and other heavy vehicles."

The project in Geelong is the first of its kind in Australia.

Lau says the refuelling station project will bring together heavy vehicle operators, manufacturers, suppliers and governments in its bid to help build the biggest public-accessible hydrogen refuelling service station in Australia.

Under the plan, a number of Viva Energy's commercial customers with fleets of heavy vehicles located in Geelong have committed to purchasing hydrogen powered heavy vehicles, which will return to the hydrogen refuelling station when required, while providing the industry with a unique experience in using and refuelling with hydrogen.

"Whether it be as an operator or as a member of the general public, to be able to drive and catch a hydrogen bus will be special," Lau says.

"We think the general public will also cherish the chance to have their waste picked up in hydrogen fuel-cell waste trucks within the Geelong region."

With all first-mover projects comes a series of challenges, and Viva Energy hasn't been exempt.

Lau says these challenges, ranging from supply chain issues to safety and design requirements, come because Viva Energy is the first company in Australia to propose a hydrogen refuelling station at this scale.

With its role as a leader in the field in mind, Lau says Viva Energy hasn't spared any details when it comes to the integration and design stages.

"As the process evolves, it's clear the scale of what we're trying to do is unparalleled in Australia," Lau says.

"We believe our knowledge isn't rivalled in Australia and part of that is because we have had to work on solutions to the challenges we have encountered throughout the design stage.

"This has given us unique insights into how hydrogen fuel-cell technology works in a commercial context and scale."

While Viva Energy has engaged a range of consultants to help design the Geelong station and to assess potential risks with the project, it is also utilising its own experience as a Major Hazard Facility operator to set standards and ensure the station will meet all regulations with ease.

"The biggest challenge we've faced is something we don't think too much about, which is that we're the first in Australia to build a hydrogen service station of this size," Lau says.

"It means there aren't many people to learn from and few to talk to about challenges and solutions – there's so little history to rely on."

The main option, Lau says, has been to seek guidance from overseas hydrogen projects in order to resolve issues that have come up locally.

The final hydrogen fuel station will reflect a collaboration between Viva Energy, its external and internal experts, deployment

Hydrogen
VIVA
Hydrogen
H2

partners, suppliers and vehicle manufacturers.

“There’s a lot of trust and very strong relationships between all of us in this venture,” Lau says.

“We’re fortunate that we can share what we need with our partners – this is where Viva Energy’s long-term focus on customer relationships has been beneficial and enabled the project to come to life.”

Lau is confident that what Viva Energy has learnt throughout the opening stages of the project puts it at the forefront of hydrogen refuelling infrastructure in Australia.

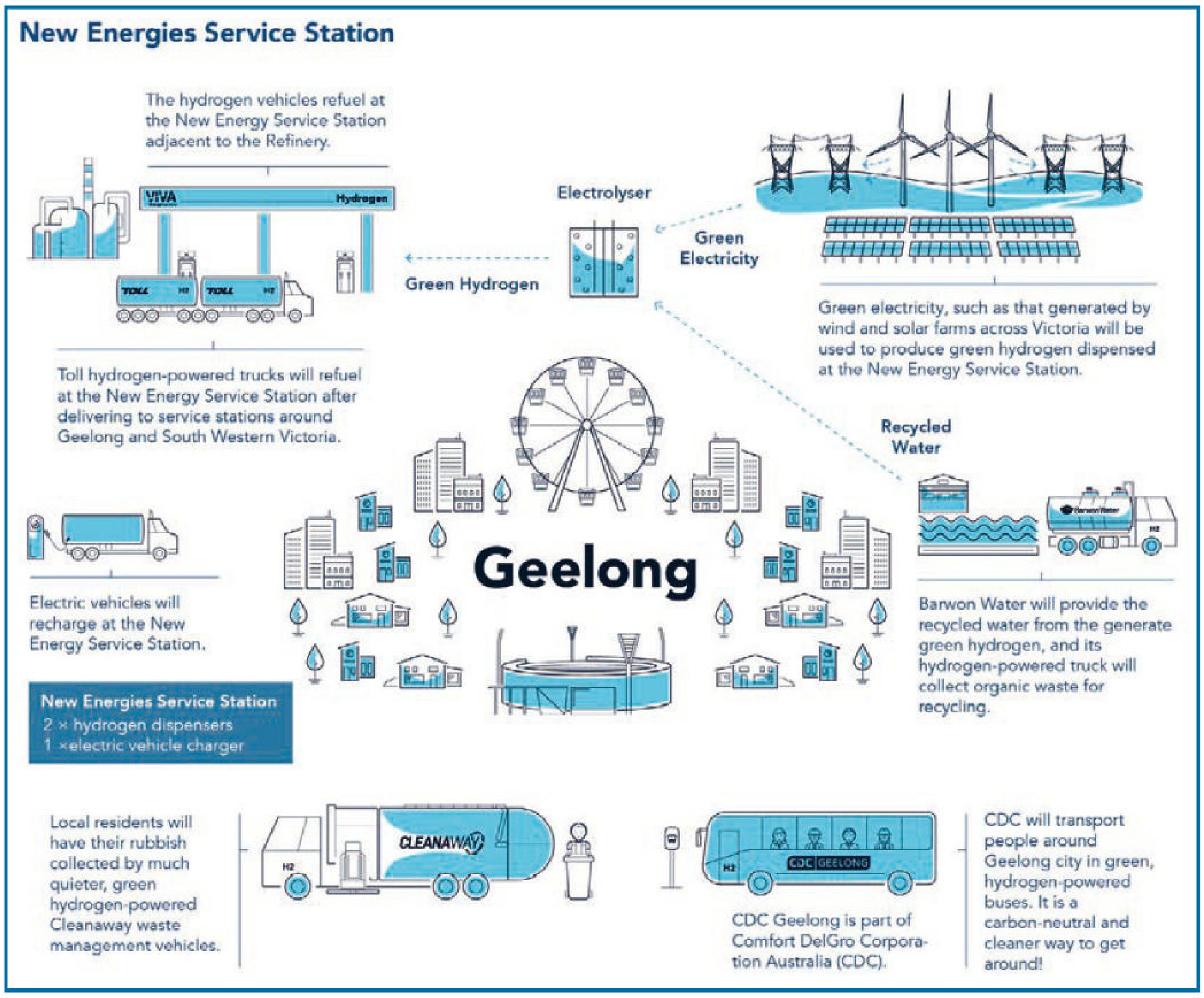
Viva Energy is getting ready for construction to begin, finalising timeframes and organising the delivery of two large packages of equipment to the site; the electrolyser to produce the hydrogen and the high-speed refuelling equipment.

Ordering the hydrogen-powered heavy vehicles comes next, and then it’s all about getting the timing right.

“It’s a super exciting time – it’ll be amazing being able to touch, feel and see the parts of the project,” Lau says.

“It’ll provide evidence of the application of hydrogen in decarbonising the transport industry, while showing that heavy vehicles can be refuelled quickly.

“It’ll also provide the first data points on the use of hydrogen in commercial settings across a number of areas such as driver schedules, refuelling time required, how the vehicles run and other data that we don’t yet have.”


New Energies Service Station

The hydrogen vehicles refuel at the New Energy Service Station adjacent to the Refinery.

Toll hydrogen-powered trucks will refuel at the New Energy Service Station after delivering to service stations around Geelong and South Western Victoria.

Electric vehicles will recharge at the New Energy Service Station.

New Energies Service Station
2 × hydrogen dispensers
1 ×electric vehicle charger

Green electricity, such as that generated by wind and solar farms across Victoria will be used to produce green hydrogen dispensed at the New Energy Service Station.

Barwon Water will provide the recycled water from the generate green hydrogen, and its hydrogen-powered truck will collect organic waste for recycling.

Local residents will have their rubbish collected by much quieter, green hydrogen-powered Cleanaway waste management vehicles.

CDC Geelong is part of Comfort DelGro Corporation Australia (CDC).

CDC will transport people around Geelong city in green, hydrogen-powered buses. It is a carbon-neutral and cleaner way to get around!

When construction begins, Lau will be able to witness Viva Energy’s vision being brought to life.

She says it won’t just be a landmark moment for both Viva Energy and the Geelong community, but also for the entire Australian transport industry.

“It’ll be really exciting to see hydrogen not just being spoken about, but also being built and operational in Geelong,” Lau says.

“We identify hydrogen as the way forward towards a lower carbon future and still hold the same ambitions to complete our east coast hydrogen network.”

Viva Energy’s hydrogen refuelling station project received a $22.8 million grant from the Australian Renewable Energy Agency (ARENA) as part of ARENA’s Advancing Renewables Program and a contribution of $1 million from the Victorian government via the Renewable Hydrogen Commercialisation Pathways Fund.

Top: An artist’s impression of what the refuelling station in Geelong will look like

Above: An insight into how the refuelling station will work

Opposite, Below: Viva Energy Head of Hydrogen and EVs Sandra Lau

WELCOMING WOMEN

At this year's BIC Summit in Canberra, Volvo's Sarah Forbes was on a panel that discussed creative ways of making the bus and coach industry more accessible for women and younger people.

IMAGES VOLVO BUS AUSTRALIA

There's no hiding what the major talking points in the bus and coach industry currently are. As one of the many speakers who presented at another jam-packed two-day Bus Industry Confederation (BIC) Summit in March, Volvo Bus's director of e-mobility, connected services and partnerships, Sarah Forbes, discussed exactly what she heard at Canberra's Hotel Realm.

"At the last few BIC Summits, a lot of conversations have been dominated by the zero-emissions transition," Forbes told ABC. "The issue has really emerged recently, and in 2023 it's continuing to go full steam ahead with that electric transition discussion.

"At this year's Summit, it was about more than just the bus, as it also looked into other issues like financial structures, how you prepare your staff for electric operations and other broader conversations."

Sarah Forbes

Yet Forbes was part of a more unique discussion in the afternoon session of the first day.

As part of a panel facilitated by BIC executive director Roz Chivers, Forbes discussed current challenges facing women in industry as well as looking at ways to attract, retain and promote the emerging workforce.

Forbes was part of a full panel, which also involved Transdev Jon Holland managing director Rachel Spencer and Red Bus Services business services manager Leanne Griffiths among other women in the industry.

Forbes says she was nervous but excited to be part of her first BIC Summit panel alongside some respected industry colleagues.

"I was really excited to sit beside some respected and prominent women in the industry who are well regarded," Forbes says. "It's an honour to have been asked to sit with them and talk more broadly as an all-female panel, it was such a unique session for the Summit.

"It was really interesting hearing from women from different parts of the industry, such as manufacturers, suppliers, operators and drivers."

At the panel session, Forbes used her time to speak about Volvo's strategic vision that focuses on increasing equity, inclusion and diversity.

The global brand has a target to have 35 per cent of its workforce be made up of female workers before 2030, including in management or executive roles at Volvo by that time. Currently, the Australian Volvo Bus management team has achieved the 50 per cent female employment benchmark.

She clarified the difference between equality and equity. Forbes says equality assumes everyone is starting from the same point, whereas Volvo focuses on equity, which stresses that each person has different circumstances that requires a variety of resources to reach equal outcomes.

"Equity is important when considering issues like the gender pay gap and that women often leave the workforce to be primary care givers," Forbes says.

"In order to attract them into or back into the industry, businesses need to recognise that not everyone starts from the same spot. How do you create those opportunities?"

Forbes says the women in industry conversation relating to equity has evolved in the past year. Due to the pandemic, changes to flexible working scenarios and reduced travel has provided great opportunities for some women to get more involved in the industry.

Forbes says that businesses must navigate this changing workplace expectation as well as conduct their usual business, which is no small feat.

"Currently we have an industry average age of people in their 50s," Forbes says. "Now is a unique time to figure out how to get the younger population interested in coming into the industry, particularly when you consider the drastic industry change coming with the zero-emissions transition."

Forbes has some simple ideas to help improve access for more women and to allow young people to excel in the industry. She says businesses should take a moment to brainstorm initiatives that tackle the shortcomings in the current ecosystem.

For example, she says that working parents in the industry get four weeks of annual leave, but their school aged children might have six weeks of holidays, meaning it's impractical for parents (and women in particular) to thrive in the professional environment.

"It's a hard topic to discuss as you can't change the world in a day," Forbes says. "If possible, the question is how do you create flexibility in a workshop environment?"

At the Summit, Forbes said there's no single new idea to combat this.

> At this year's Summit, it was about more than just the bus, as it also looked into other issues like financial structures, how you prepare your staff for electric operations and other broader conversations.

While the zero-emissions transition remains a main priority for governments and public transport organisations who are introducing transition plans, Forbes also wants them to discuss ways to entice more workers into the industry.

She says there are some easy solutions to consider. Some smaller practical steps include giving offices a facelift by adding plants and evolving workplace décor to provide inviting spaces that cater for everyone so that they all want to work in the workplace.

Forbes says this is all part of solutions that the bus industry could initiate themselves.

Traditionally, she says the bus industry has inadvertently advertised to itself, meaning it struggles to attract new people from outside of family ties and circles.

Forbes challenges businesses to consider how to approach young people in school and encourage them to consider interesting careers such as a transition director at a bus operator as an exciting future path to head down.

"I'd like for the bus industry to think creatively," Forbes says. "We have so much opportunity to lead the conversation on diversity and inclusion.

"The general public don't know what they could do with a bus career, so we should shout from the rooftops how great the industry is, how inclusive it is and the opportunities everyone has when they enter it."

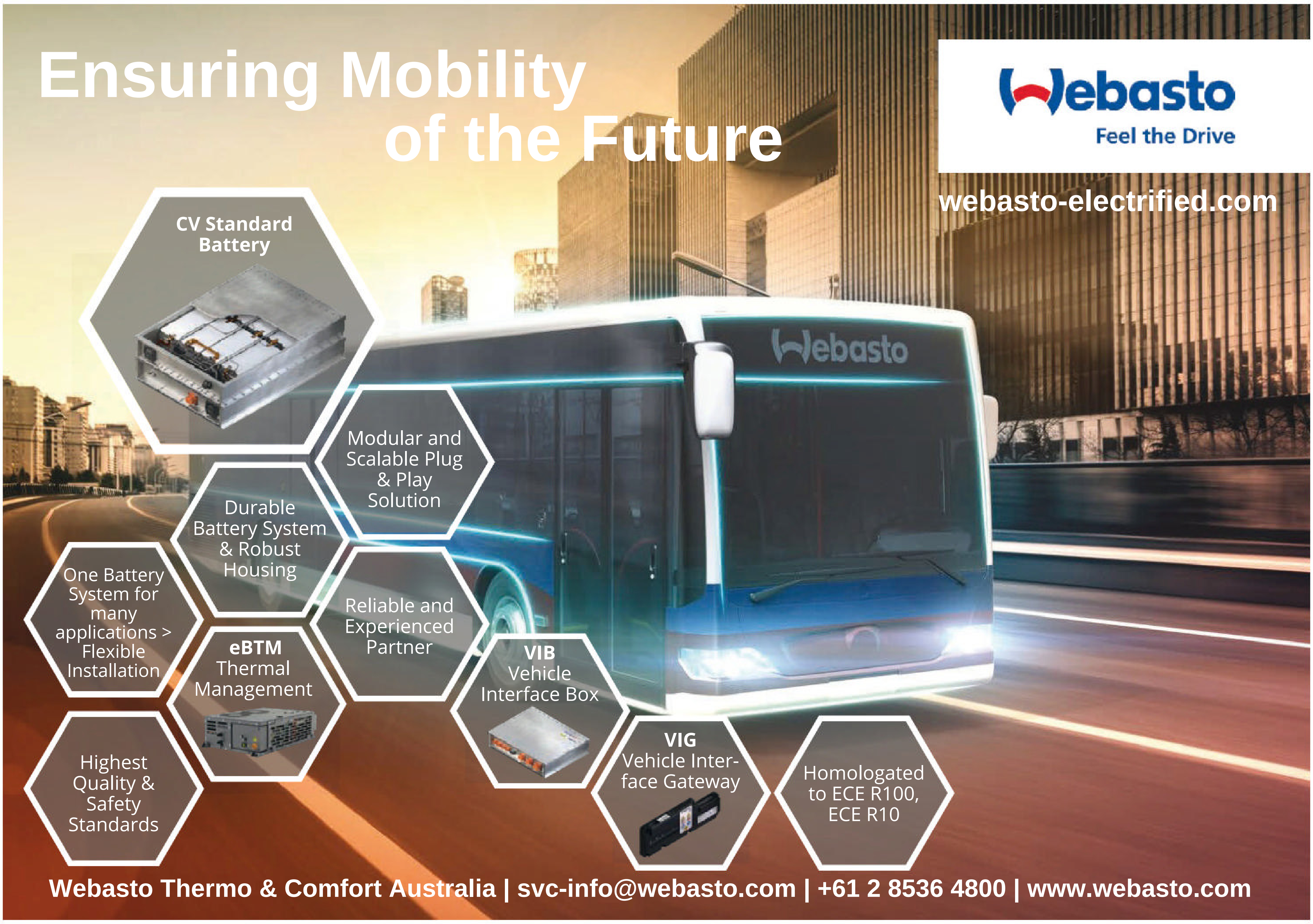


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Photo credit: Pullman Cairns International Pool Hotel

CONVENING IN CAIRNS

In April, QBIC will hold its annual conference in far north Queensland. A variety of topics and speakers are lined up to keep the state's bus industry ticking.

IMAGES QBIC

David Tape

With his vast experience in the Queensland bus industry, Queensland Bus Industry Council (QBIC) executive director David Tape is expecting another exciting QBIC Conference in April. After celebrating 100 years of representation in 2022, the 2023 version of the conference will be Tape's last with QBIC before he moves on in July.

He's looking forward to catching up with the Queensland industry one last time in Cairns.

"It's going to be a great opportunity to bring everyone together and mingle," Tape told ABC.

"There'll be plenty of stuff to take away and I can't wait for everyone to dine together on the Saturday night and celebrate the year that was."

The conference, which will be held at the Pullman Cairns International on April 14 and 15, is run under the theme 'Transition – Are We Ready?'.

Tape says the title gives a hint into the new age topics that will be covered by QBIC and its array of speakers.

"When I looked at the theme, I tried to create a title or theme that captures more than one specific topic or issue within this scope," Tape says.

"Zero-emissions will be a key part of our conference, particularly while we transition to it in the coming years. At the same time, we also need to transition our industrial relations environment and operators need to be ready for that."

Tape says the annual conference is always a relaxed environment, as QBIC's event allows industry members to meet with members of Queensland's Department of Transport and Main Roads (TMR) and various levels of government.

From the conference side of things, Tape has worked hard to ensure the agenda is full of informative sessions on the most pressing issues facing the industry. At night, QBIC will also hand out its annual industry awards.

"We always try to keep a good spread and even discuss cyber security," Tape says.

"We're all at risk, and if people are hacked then it's a time-exhausting and expensive exercise to get back to where they were."

The conference's full day of sessions will also look at Queensland's smart ticketing update and school tracking solutions alongside a deep dive into industrial relations, to be run by APTIA National Industrial Relations Manager Ian MacDonald.

Guest presenter Rob Edwards will speak on the Saturday. Tape says he'll focus on the importance of wellbeing and members of the industry looking after themselves.

"I want people to take away from Rob how important they are to their business and that looking after themselves keeps their business in good shape," Tape says.

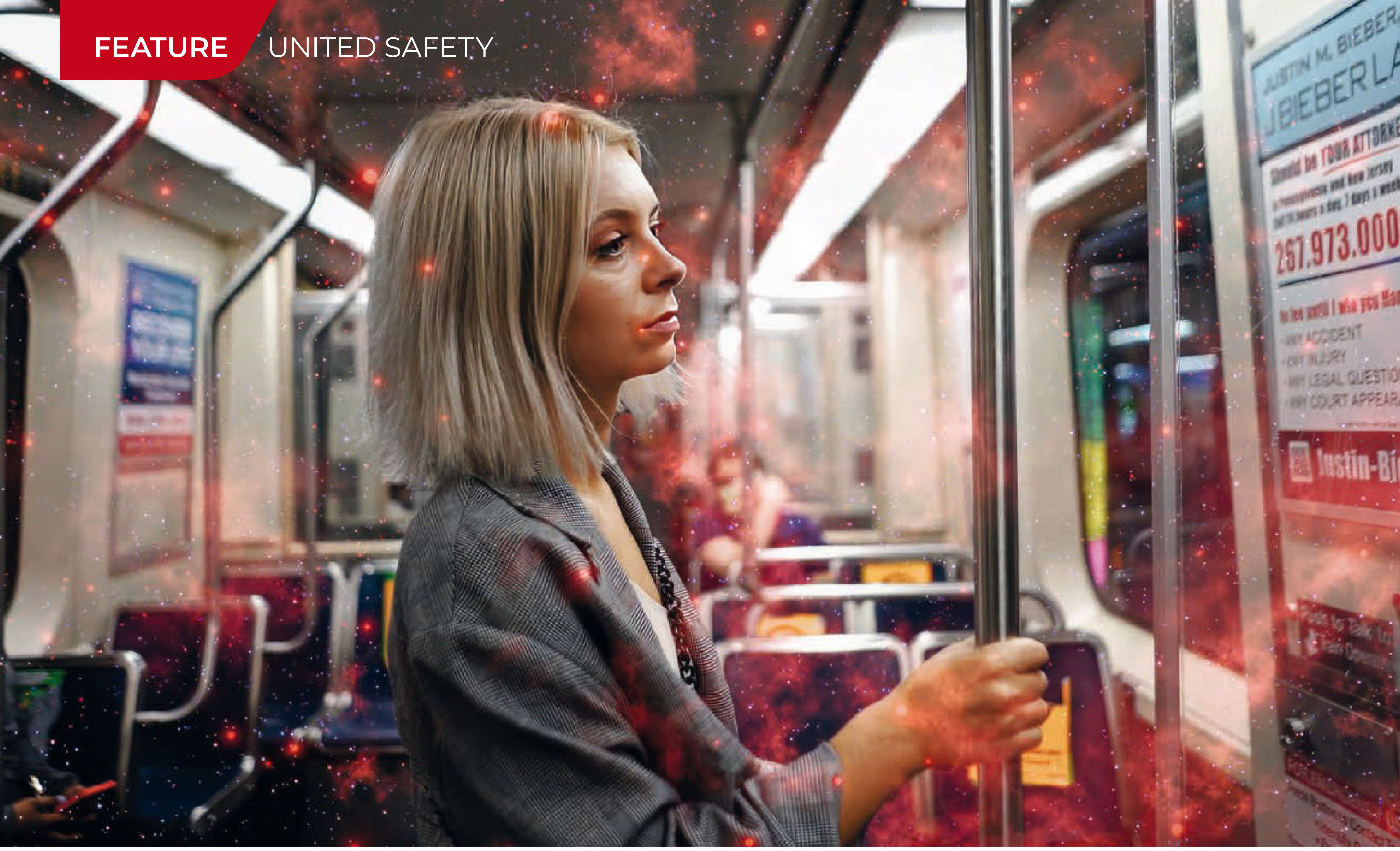
"I hope our members know they are important and that QBIC is always there to support them and their business."

In Tape's final QBIC Conference, his main aim is to once again bring the industry together and enjoy the relaxed two-day event in sunny Cairns.

"I want to bring together everyone – our member operators, bureaucrats and our regulators included," Tape says.

"I can't wait to unify the industry and strike good relationships so that we can all get on with successful business."

QBIC. Moving forward together.



SAFETY SPLURGE

For Tassielink Transit's Shane 'Bubbles' Dewsbery, United Safety & Survivability Corporation's varying systems are an attractive way of encouraging passengers back onboard buses.

IMAGES UNITED SAFETY/ TASSIELINK TRANSIT

Tassielink Transit was searching for innovative ways of making the passenger experience safer and more comfortable when it decided to combine new safety and ventilation systems from United Safety with the latest Scania low-floor buses it had on order.

The process started roughly six months ago when the Scania low-floor buses went into build for Tassielink Transit. The operator is marketed as the largest regional bus operator with the most extensive bus network around Tasmania, operating from Hobart to Launceston and from the east to west coast.

Tassielink Transit managing director and industry stalwart Dewsbery remembers first meeting with United Safety & Survivability Corporation (United Safety) to consider a pioneering addition to their newest fleet of vehicles.

"The team at United Safety first explained the product to me and I saw there were lots of benefits in it," Dewsbery told ABC.

"The team then came to the Coffs Harbour bus plant and showed me what they intended to install on the bus and how it would work."

Dewsbery says he was so impressed with United Safety's fire suppression and air purification systems that Tassielink decided to have the Active Air Purification and Fogmaker Fire Suppression Systems installed on their new Scania vehicles.

The Scania low-floor buses open possibilities for Dewsbery. He says Tassielink Transit will now be able to make its services even more accessible, with low-floor vehicles being easier to ride on for people in wheelchairs and other inhibited passengers.

To support this accessibility spree, Dewsbery leapt at the chance to feature United Safety's systems onboard the new fleet of buses.

The Active Air Purification system works to remove pathogens from the air in the bus. United Safety says that it eliminates greater than 99 per cent of germs, microbes, viruses and bacteria using naturally occurring hydroperoxides.

United Safety National Executive Sales Manager Matthew Jarrett says Active Air is mounted in the return air duct of a bus's HVAC system. As the system sucks in air, it passes over United Safety's catalyst system. This is where the change happens.

Jarrett says the Fogmaker Fire Suppression System uses high pressure firefighting agents to douse engine bays in the event something goes wrong.

United Safety's product leaps into

action once there is circulated air. The catalyst creates a naturally occurring environment where clean air is filtered back out through the air-conditioning vent to actively fight pathogens in the air, including COVID-19 particles.

"As long as air remains circulated, our system will keep creating hydroperoxides to fill voids, drop onto surfaces and ultimately prevent transmission," Jarrett says. "Our Active Air system helps increase ridership onboard buses by keeping passengers safe onboard."

United Safety says this technology will replace old methods of wiping down buses, which Jarrett says is rendered useless when people get back on the bus and reintroduce pathogens into the air.

Instead, Active Air actively works while the bus operates, cleaning the air and surfaces to protect both drivers and passengers.

Jarrett says the system was re-introduced to public transport when commuter sickness syndrome returned. Now, the product has been re-engineered to target the COVID pandemic.

While United Safety & Survivability Corporation is headquartered in America, the company says it has identified a gap in the Australian market for safety products onboard heavy vehicles. In particular, it has found its air filtration systems are valuable commodities in a post-COVID Australian transport landscape.

"Active Air moves away from conventional overcleaning that happens onboard buses," Jarrett says.

"Our relationship with Tassielink and 'Bubbles' gives us a wonderful opportunity to get our system out there and known in Australia."

United Safety is also implementing its Fogmaker fire suppression system to keep passengers safe in case of emergency.

The water mist system is already widely used around Australia. Jarrett says United Safety has currently installed more than 10,000 pieces of this equipment in the nation.

Although Tasmania isn't currently mandated to have fire suppression systems onboard buses, Jarrett says other states like Western Australia, New South Wales and Victoria have these rules mandated, making the Fogmaker an important safety consideration for operators.

"The conversation we had with 'Bubbles' was about how we helped protect his assets, drivers and passengers," Jarrett says. "The Fogmaker is all about safety."

The fire suppression unit starts with a detection unit that can detect a thermal event, such as when there's a heat spike in the engine bay. The system will then drop the pressure in valves and send alarms to the operator via a small fire panel.

The third component is the distribution and agent network. Once the loss of pressure occurs, it trips the system into discharging the suppressant, which is located in various nozzles around the engine bay, providing for direct application to a potential fire event.

Dewsbery says United Safety's systems will keep Tassielink buses safer while also increasing convenience and comfort for passengers onboard.

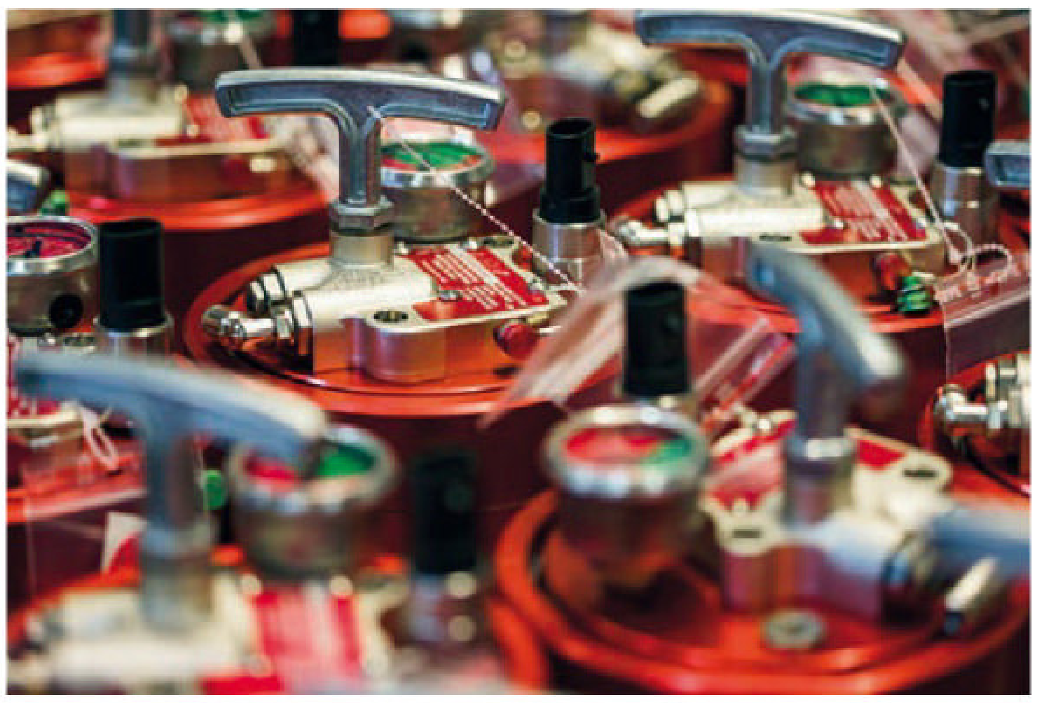
He says introducing a low-floor scenario into buses that cover a longer distance and remain more accessible for passengers requires an improvement in

> The Active Air Purification system works to remove pathogens from the air in the bus. United Safety says that it eliminates greater than 99 per cent of germs, microbes, viruses and bacteria using naturally occurring hydroperoxides.

Above: United Safety's popular systems help keep passengers safe

Below: The technology prevents thermal events from spreading throughout the vehicle

Opposite, Top: United Safety's products help keen passengers onboard buses safe



The new generation Scania dashboard provides drivers with increased visibility and air vents keep them cooled or warm independently from the passenger saloon.

ventilation systems used.

‘Bubbles’ says United Safety’s systems fit the requirement perfectly.

“One thing I love about the United Safety’s products is that you can retrofit them into other vehicles,” Dewsbery says.

“The relationship between using public transport and COVID is still there, so we looked into enhancing passenger comfort on Tassielink journeys.

“If United Safety’s products are going to contribute to passengers feeling more comfortable using the buses, it’s worth a try. As an organisation, we aren’t scared to try something outside of the norm.”

These safety systems are onboard the first Scania new bus generation models to be delivered in Tasmania.

The newest bus will run from Hobart to Bicheno and Swansea, covering 120,000 kilometres annually by making the 330 kilometre round trip carrying locals, school children and tourists.

The United Safety products come onboard the high/ low floor combination platform bus that has coach seats and seatbelts fitted, along with decent underfloor luggage bins to accommodate both bicycles and tourist backpacks.

With an Express body on top, these passenger comforts are also supported by United Safety’s leading bus safety products. The new Scania bus will replace an older Express bodied Scania that will be re-routed to run from Hobart to Port Arthur and other southern Tasmanian towns.

“These safety features onboard the Scania bus are an important addition to our offering,” Dewsbery says.

“The new generation Scania dashboard provides drivers with increased visibility and air vents keep them cooled or warm independently from the passenger saloon.

“The new safety features will not only please our existing drivers but help us to attract new drivers.”

Dewsbery says he is satisfied that the new technology onboard the new buses will enhance customer comfort. The industry titan always considers technology that enhances the positive experience passengers can have onboard his buses, including United Safety’s product range.

“I feel very comfortable with the United Safety and Scania products we’ve invested in,” he says.

“The process has been very simple from my perspective. Being in Tassie, it’s good to have that support from both United Safety and Scania to update our fleet with the latest in safety and ventilation technology.”

For ‘Bubbles’ and Tassielink Transit, he says he can’t wait for the new systems to be running daily, keeping Tasmanians safe as they climb back onboard buses.

“We’re really excited to introduce systems that contribute to passenger comfort and safety, such as what we have received from United Safety to raise the positive perception of public transport in Tasmania,” Dewsbery says.

Top: United Safety products, like Active Air, can be retrofitted into buses

Above: United Safety’s systems will be onboard the new Scania vehicles

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Ventura is on the brink of unveiling an exciting new fully-electric converted depot in the Victorian suburb of Ivanhoe

GREAT ELECTRIC VENTUR-A

After operating for nearly 100 years, it would be easy to forgive Ventura if it didn't participate in new energy trials. But the operator is leading the charge in Victoria as it prepares to unveil the state's first all-electric converted bus depot.

IMAGES SEAN MORTELL

When the Victorian government called for operators to engage in electric depot transitions, it was a no-brainer for Ventura to put its collective hand up. Always looking to trial new technology and master various ways of delivering bus services, the operator was interested in seeing how electric charging could revolutionise some of its depots.

A year and a half later, Ventura is already preparing to open Victoria's first all-electric bus depot after completely redesigning its Ivanhoe facility.

"Our electric journey first started when we purchased an electric bus to get a feel for the zero-emissions change," Ventura managing director Andrew Cornwall told ABC. "We've had the bus in service for a year now and it's performed so well that we have confidence in ordering another 12 electric buses.

"The process then started for us to begin upgrading our infrastructure and it resulted in this all-electric depot."

Ventura's Ivanhoe depot has been completely revamped. The previously diesel-powered facility has been converted into a fully electric powered depot.

The first step for Ventura was selecting the appropriate electric buses for the trial.

After analysing capital investment and other key factors, Ventura chose to operate 13 Volgren and BYD battery electric buses in the first phase of the trial that will be operating by the end of March, with a further 14 buses to be manufactured and operational by January 2024.

Cornwall says a major benefit of the converted Ivanhoe depot is the data and information it'll provide Ventura as it moves forward in its electric journey.

"The Ivanhoe trial allows us to go one step further than estimating battery range on vehicle kilometres and run time alone," Cornwall says.

"By utilising advanced telematics, we'll be able to understand how other factors such as passenger loading, topography and temperature play a role in calculating battery electric range so we can share these learnings prior to the larger post-2025 transition."

These buses and their advanced technology will form a key part of the converted Ivanhoe depot. Cornwall says

Ventura has multiple teams that are looking after the depot project, including groups that study fleets, analyse logistics and the infrastructure of the site.

The different groups meet regularly to look at different opportunities throughout the depot's construction.

When it came to infrastructure, Ventura chose Zenobe for the installation, based on their recent experience in the UK as well as at New South Wales's Leichhardt depot.

After choosing its electric infrastructure partner, Cornwall says Ventura had to overcome some site challenges before the conversion could begin.

"The Ivanhoe depot is a former service station, so it had some contamination we had to handle," Cornwall says.

"There were some old kerosene and petroleum tanks we didn't know were on the site, but we were able to remove them while still sticking to our schedule.".

Cornwall credits Ventura business improvement manager and project manager Michael Howlett for keeping the project moving to meet deadlines.

"He's like a dog with a bone with this trial," Cornwall says. "He's worked in our best interests – we're not afraid to get the best economical outcome and he's helped us challenge the decisions of our partners to get a better result for everyone."

Cornwall says this tenacity will be worthwhile as Ventura fights for cleaner depots.

Ventura has made a conscious decision to purchase green electricity despite the premiums that may be attached to it. This will ensure that the Ivanhoe trial will purely run as a zero-emissions depot after Ventura found accredited GreenPower energy sellers to source electricity from.

"The accreditation of the seller gives us great confidence that we're paying for and sourcing green energy," Cornwall says.

As Ventura has progressed along its electric depot conversion, Cornwall says the trial has given the community and his staff opportunities to test electric technology. It's helped Ventura pick up minor changes, such as adapting to additional weight above the steer axle in the new electric models. Cornwall expects the learnings to improve Ventura's fleet in the coming years while also making his drivers better equipped to drive electric buses.

On the precipice of officially operating the electric depot, Cornwall says three factors are critical to completing a successful zero-emissions transition.

"The first is to make sure you purchase the right bus that will last you for 20 years and then get the right infrastructure that suits your space," Cornwall says. "From there, it's all about using the right telematics to ensure the 20-year journey for a bus goes smoothly."

Cornwall says Ventura is excited about the upcoming completion of its Ivanhoe depot. Under the trial agreement with the state government, Ventura will then move onto transitioning its Pakenham depot into an all-electric space before redeveloping its Lilydale facility.

Cornwall's dream is that Ventura becomes the leader of transitioning various depots.

"Ventura is proud of what we have achieved to make this dream a reality," Cornwall says

"Ventura celebrates our 100-year anniversary next year – it's taken us 100 years to perfect diesel buses and now we're excited for the next challenge." ■

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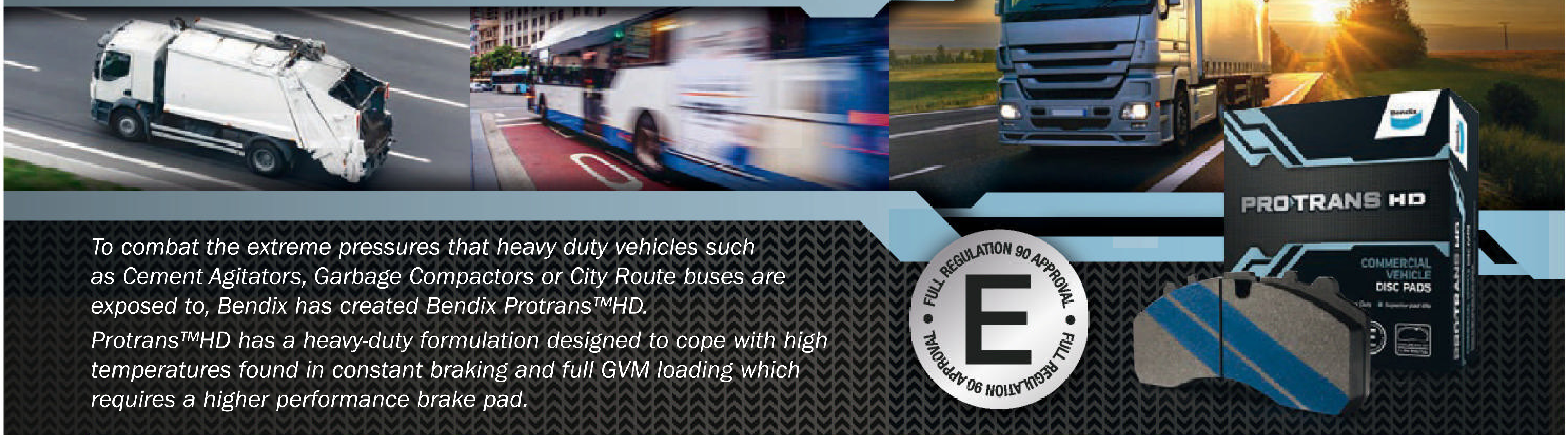

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RUNNING UP THAT HILL

For Jim Hill, he has spent more than half a century running buses in Queensland and New South Wales. He reflects on his remarkable journey as he prepares to pass on the Hill legacy.

IMAGES TAYLA HILL

The name Jim Hill is synonymous with the Queensland bus and coach industry. Having spent more than 50 years owning and running bus fleets up and down Australia's eastern seaboard, Hill has become a local industry legend for his work with Gatton Bus Service.

For someone so intrinsically linked with buses, it may come as a shock that Hill didn't always want to follow in family footsteps.

"In my old fella's eyes, there was no debate that I would be a bus man," Hill told ABC. "I'd rather have stuck with trucks.

"I went and worked with trucks for a while, but then mother nature turned me back to buses and I've stayed there ever since."

The bus industry is lucky that Hill decided to return to his family's love for running buses. As the latest member of a long line of Jim Hills to work in the bus and coach game, he's become a stalwart of Queensland's industry over the past 55 years.

For Hill, his family ties to buses started more than a century ago when his grandmother applied for licenses to run buses out of Wollongong in the years before World War I. Out of the eight licenses being issued by the local department, she was awarded three of them.

Following the war, Hill's father came onboard and grew the business, securing five of the eight licenses.

"That was when the Hill family really started to have a firm hold in the bus industry," Hill says.

"When I then left school, I went straight into an apprenticeship in the bus industry and served my time doing four years in Wollongong with my old man."

Hill was the last of the five-year apprentices. To offset the extra year, Hill completed his final two years of his apprenticeship at former England vehicle manufacturer Leyland Motors. At the time, Leyland was a well-known producer of lorries, buses and trolleybuses before the English body went defunct in 1968.

During this two-year period, Hill lived in London and worked at the main Leyland factory. After his apprenticeship finished, he stayed in England for another few years to learn more about spare parts.

Working with the Sydney-based second-hand spare parts dealer Trevor Sloan, Hill continued his English journey in Southampton where he drove tow trucks around, picking up old trucks and trailers for wreckage that would eventually be transported to Australia.

Eventually it was Hill himself who would return to Australia to resume his mechanical work with his father.

But it wasn't a triumphant return for young Hill. Upon landing down under, a falling out between Hill and his father pushed him away from the bus industry towards the lure of trucks.

"I started driving trucks interstate for quite some time after that," Hill says. "When I eventually got back into the bus game, I sold my trucks and got back in Sydney for five years."

It seems like Hill was always destined to return to the family passion. He forged his own way in the bus sector, buying four routes from Cumberland Coaches in 1983. Just two years later Hill bought more routes from South Western Coach Lines and ran them under the name of Revesby Bus & Coach Service.

Although he loved the grit involved with running services in Sydney, Hill soon saw an opportunity to dominate the market in a nearby state and left New South Wales.

At the time Hill was running buses in Sydney, he only remembers there being five bus companies on the market in Queensland. He started a legacy by buying Gatton Bus Service and moving up north.

"I was lucky enough to strike these Queensland companies early, with the first one being in Gatton," Hill says. "The other companies in Queensland were Minden Bus, Logan Coaches, Beaudesert Bus and Glasshouse Mountains.

"I eventually bought them all and had more than 200 buses. It nearly killed me running that many buses."

Hill says he benefited in his early forays in Queensland by having limited competition. While many Queensland operators were happy to lay low, Hill came storming in to seize control of the state's main bus businesses.

"People in Queensland weren't interested in slaying the world, but I was," Hill says. "I was 100 miles an hour and brought venom. A lot of people after that woke up to the fact they were a bit slow off the mark."

> "The bus industry is lucky that Hill decided to return to his family's love for running buses. As the latest member of a long line of Jim Hills to work in the bus and coach game, he's become a stalwart of Queensland's industry over the past 55 years.

After buying his way through the Queensland bus market, a standard day was never the same for Hill. He would start at Glasshouse Mountains and travel to three companies per day, checking out the management and updating the ancient vehicles.

His mechanical background came to the fore while undergoing a massive vehicle replacement program. Hill says this hectic time of his career meant no two days were ever the same at the helm of multiple bus companies.

"I loved the role as there were 10 changes in a day and it was so fast-paced," Hill says. "It started with making sure guys got out of bed in the morning to looking after the vehicles in our fleet."

After 55 years in the industry filled with successful services, Hill's presence is set to come to a close in 2023. The stalwart turned 75 recently and has announced he will slow down and retire from the sector. He's now in the midst of assisting his daughter Tayla in transitioning ownership of Gatton & Minden Bus Service before he steps away.

"At the age of 75 it's time to steadily wind down my career," Hill says. "When Tayla finished school she came to the yard pretty often and was always interested in it.

"She's worked in our offices here for the past five years and knows the game back to front, so I'm excited to see what she can do with the business."

When Tayla replaces Jim at the head of Gatton & Minden Bus Service, it'll be yet another milestone moment in the Hill family's bus legacy. Hill admits after celebrating his 75th birthday, he's looking forward to retirement. Yet he knows he won't stay too far away from the bus sector to give Tayla a helping hand if required.

"I'm proud of the Hill family and it feels great knowing we've got a long way to go yet," Hill says. "It's up to Tayla now – if she wants to keep on growing the business then there are more purchases to be made and she's capable of growing the place further."

For such a long stint in the industry, Hill is remarkably measured upon reflection. He says he doesn't have any particular highlights or challenges that headline his career.

Throughout his time owning bus companies, Hill says he flew close to the wind financially at times. He credits financier and dealer Boy Bradstreet for being Hill's saviour when the goings got tough.

Despite not wanting to follow his father's wishes and work in the bus industry, it's been a special career for Hill. He'll leave the industry this year confident that the sector will continue following the rules and excelling all over the country.

"It's a great industry and it's given me a good life over the past 55 years or so," Hill says. "There are a terrific bunch of people in the industry and I'm sure it'll continue staying strong and performing well."

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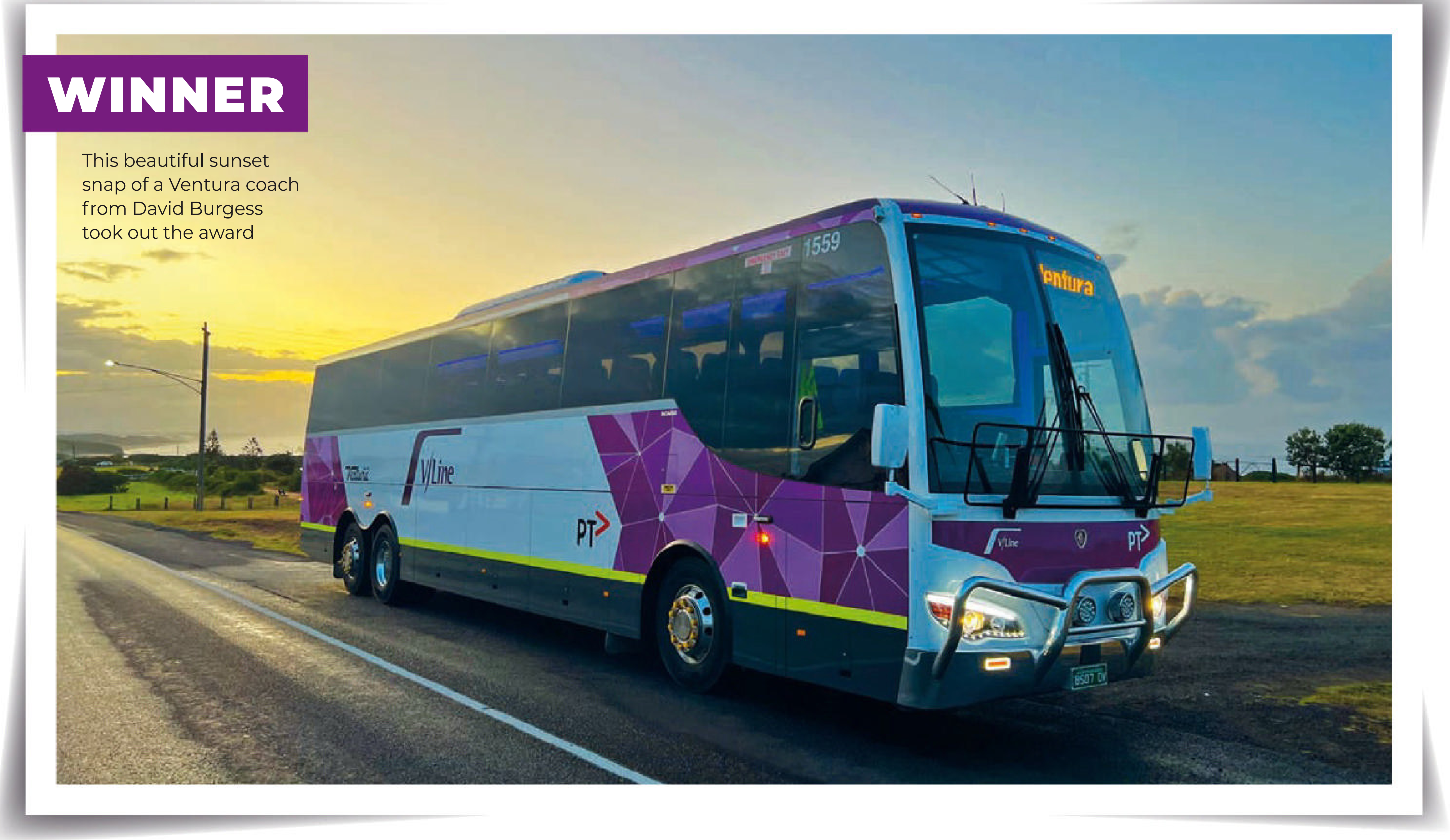
CROWNING THE FIRST BEST BUS

In February, ABC Magazine's Best Bus photo competition kicked off. Out of all of the wonderful entries, one bus snap stood out above the rest.



WINNER

This beautiful sunset snap of a Ventura coach from David Burgess took out the award

In mid-February, ABC Magazine decided to start a new competition that rewards the best-looking buses around Australia. Our launch of the ABC Best Bus competition seeks to capture the best photos of the many wonderfully maintained and operated buses and coaches in the country.

From the bus nuts to the industry members, we all love a striking bus or coach. Whether it be the vintage or the brand new, ABC received recipients far and wide, spanning various generations, to help us find the best-looking bus around Australia for March.

The ABC Best Bus competition will recognise the most eye-catching bus photo each month from anyone in the industry, starting with our March winner.

The winner of the monthly competition will have their photo shown off on the ABC Facebook cover photo slot for the entire month, while the entrant with the most beautiful bus photo will also receive a free 12-month subscription to ABC Magazine.

Before we crown our inaugural winner, there are some noteworthy mentions for some of our finalists. Out of all of the photos we received, some stood out and caught our attention. Queensland driver Matty Healey's photo of a Clarks Translink bus in the sunset was a worthy finalist, as was Oliver Poate's snap of a vintage Mercedes-Benz sitting next to a new Keolis Downer blue beauty.

We were also in awe of A.J. Martinelli's terrific photo of a Victorian Dysons bus with its resplendent orange and white exterior, while Freney Transport Group's Mercedes-Benz coach came very close to winning first prize.

But one photo emerged on top ahead of the pack. ABC has great pleasure in announcing that Ventura Bus Lines' David Burgess has won the March Best Bus competition.

Burgess won with a stunning shot of a Ventura V/Line Scania bus travelling along with its striking purple and white exterior as the Victorian sunset shines on. The timing and detail of the vehicle makes the photo eye-catching – ABC can't wait to make it its Facebook cover photo for March.

Flip over the page to see many of our finalists and entrants' photos from what was an amazing opening month, and don't forget to send through your Best Bus photos for the months ahead via email or through our Facebook page!

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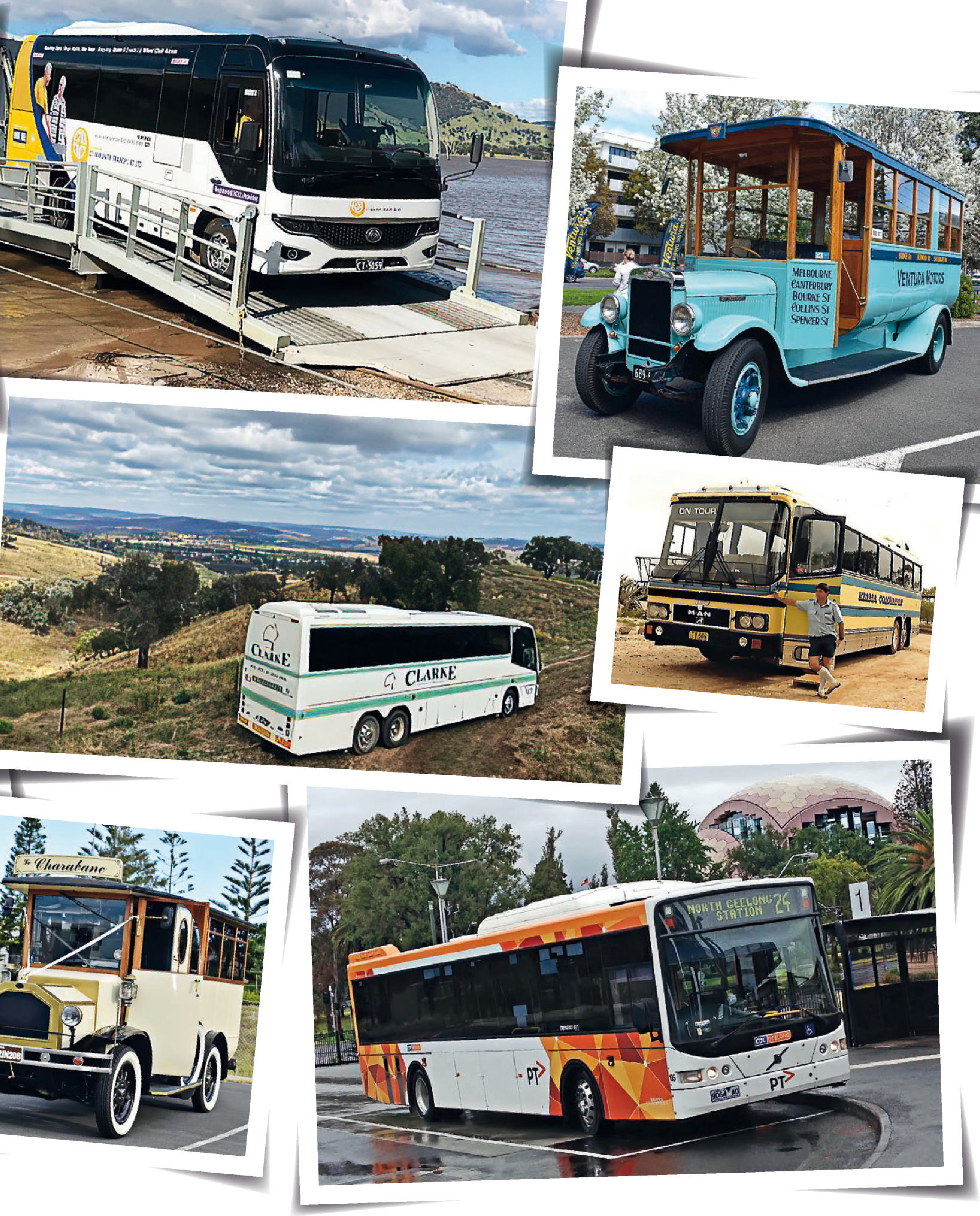
VENTURA MOTORS
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COLLINS ST
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ON TOUR
M·A·N
CLARKE
Le Charabanc
NORTH GEELONG STATION 24
CDC GEELONG
PT>

Top left clockwise:
A Yutong in Wymah, a 1928 Ventura bus from David Burgess, Keith Pardoe's old MAN, Geoff Garside's entry from Geelong station, the old Charabanc and a Denning/ Phoenix coach courtesy of Daniel Clarke

Opposite, Top left clockwise:
Freney Transport's Mercedes-Benz, a Scania Optibus, an Olympic special from Jason Healey, two varying buses from Oliver Poate and a Hobart beauty courtesy of Neil Robins

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FAR NORTH COAST NSW TOUR & COACH - Diverse revenue stream including NSW trains emergency & pre planned track work, assisted school travel program DoE operating 3 x contracted services and organised tours. The tour business is a proven well recognised brand and highly successful and the school charters with a large client base. Situated on 25 acres with approval for subdivision into three lots, and with a fully set up bus depot and executive style home. A complete package!

RIVERINA NSW SCHOOL BUS & COACH - Diverse income with TfNSW school bus contract with 4 x bus runs/services, 3 x private school bus runs, general charter work and organised tours running a fleet of 10 buses & coaches. A profitable model that can sustain a family or suitable for an investor. 20+ years trading history with strong brand recognition and regular clientele. Sold with a depot situated on 3,880sqm industrial land.

SCENIC HORIZON TOURS, CENTRAL COAST N.S.W - Est in 1999, Coach tour operator providing a range of day tours and extended tours for the senior market in the Central Coast region (Woy Woy, Gosford). Travel club membership, approx. 1,500 members. Strong relationships in place with many Probus Clubs and Senior Groups. 1 x Immaculate Luxury 5 star, Mercedes Benz Touring Coach included in the sale. Current owners retiring.

ALPINE SPIRIT COACHES & SNOWBALL EXPRESS - Est in 1970 - Myrtleford based Coach Company providing private charters, 4WD transfers, senior tours, educational tours (Canberra and Central Australia) and snow bookings, SNOWBALL EXPRESS is contracted and offers a direct route bus service to Mt Hotham and Dinner Plain. It is seasonal from June to September. Sale including 7 x coaches & buses. Business would suit a larger Melbourne or Victorian based operator as an acquisition.

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BUS INDUSTRY CALENDAR OF EVENTS FOR 2023

Be sure not to miss out on an opportunity to attend these fantastic in-person events

MARCH

BusVic
March 21
Melbourne Branch Meeting

BIC
March 21-22
Bus Industry Summit (Hotel Realm, Canberra)

BusVc
March 27-28
Maryborough, Hamilton, Horsham and Bendigo Branch Meetings

APRIL

QBIC
April 13
Committee/ Supply Partner Evening

QBIC
April 14/15
Annual Conference & Gala Dinner

MAY

BusNSW
Delegates Forum/ Country & Metro/ BusNSW AGMs/ BoM-BCIA-Coop Meetings

JUNE

QBIC
June 16
Regional Member Forum Gympie/ Maryborough

TasBus
June TBA
Annual Conference and Dinner

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2011 IVECO
Irizar body, Wheelchair lift, 53 seats.
$115,000 + GST

2009 IVECO DELTA
Custom body, 57 seats, Automatic, 214,000km
$70,000 + GST

2005 MERCEDES O500RF
50 recliners, toilet, A/C, low km, manual
$70,000 + GST

2007 HINO RK260
P&D body, 57 seats, Manual.
290,000 KMS
$45,000 + GST

2010 SCANIA K420
52 recliners, automatic, toilet, new engine
$145,000 + GST

2006 MERCEDES OH1830
57 seats, A/C, manual
$65,000 + GST

ABC-QH-5171496-TS-423

2 X 2011 HIGER "T SERIES"
Cummins ISB300hp, Automatic inc a retarder, 57 fixed coach seats inc lap sash seat belts, A/C, underfloor bins travelled approx. travelled approx. 100,000klms
$85,000+GST

2014 IVECO EURORIDER
ZF AsTronic trans,13.5m Irizar I6 body,52 leather reclining seats,DVD,toilet,A/C,large undefloor bins,travelled approx. 320,000klms
$205,000+GST

2015 SCANIA K440EB
Wheelchair lift equipped, Opticruise, Irizar I6 13.5m body, 52 lap sash seat belted recliners, toilet, DVD many extras, travelled approx. 1,530,000klms
REDUCED TO $180,000+GST

2010 SCANIA K420EB
Opticruise, Irizar "Century" body, 13.5m, Service exchange engine fitted, 53 leather lap sash seat belted seats, DVD, 2 door, centre toilet, Ringfeder coupling, many extras, travelled approx. 976,000klm
$145,000+GST

4 X 2012 SCANIA K440EB
Opticruise transmission including a retarder, Irizar 13.5m "Century" bodies, 54 lap sash seat belted seats, 48 when 2 wheelchairs fitted, rear toilet, A/C, plus more, travelled approx.1,500-1,650,000klms, engines and transmissions have been rebuilt approx. 4-500,000klms
REDUCED TO $110,000 +GST each

2 X 2010 BCI "EXPLORER" 14.5M
Cummins ISM 410hp, Allison automatic inc retarder, 71 lap sash seat belted leather seats, Tracs A/C, large underfloor bins, very clean, complete service history
$115,000+GST

2011 BCI "EXPLORER" CUMMINS ISM410HP
Allison auto inc retarder, 58 lap sash seat belted leather recliners, rear toilet, Tracs A/C, large underfloor bins, very clean, complete service history
Wheelchair lift equipped
Reduced to $95,000 +GST

2011 BLK "SENATOR 12" CUMMINS ISB300HP
Automatic inc a retarder, 53 reclining coach seats inc lap sash seat belts, A/C, underfloor bins, school lights, Hanover destination sign, clean bus, travelled approx. 285,000klms
POA

2016 ISUZU FSS600 4X4
6sp manual, Quality Bus & Coach body, 28 lap sash seat belted seats, Thermo King A/C, UHF, Bull bar, travelled approx. 129,000klms
$160,000+GST

2005 MERCEDES BENZ 1836RF
6sp manual, Coach Design 11.0m body, 34 lap sash seat belted seats, Thermo King A/C, rear toilet, large underfloor bins, Rear boot, many extra
REDUCED TO $70,000+GST

2014 BCI CLASSMASTER 71
14.5m, Cummins ISL360hp, Allison automatic, 71 lap sash seat belted seats, A/C, large underfloor bins, DVD, travelled approx. 235,000klms
REDUCED TO $175,000+GST

2006 VOLVO B12R
I Shift, Wheelchair accessible, Coach Concepts 13.5m body, 52 lap sash seat belted recliners, toilet, underfloor bins, Thermo King A/C, service history, travelled approx.1,500,000klms
$115,000+GST

2014 BLK "SENATOR 9"
9.8m, Cummins ISB300hp, Allison automatic inc a retarder, 32 leather recliners, Thermo King A/C, rear toilet, large underfloor bins, travelled approx 325,000klms
$107,500.00+GST

2013 VOLVO B9R
I Shift, 12.5m Irizar I6 body, 40 lap sash seat belted leather recliners, toilet, 2 door, underfloor bins, DVD with 5 monitors, plus more, travelled approx 960,000klms
$130,000+GST

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ASIA PACIFIC

Sege Seats rose to a commanding lead in the seat market

February deliveries slow

After a whirlwind start to 2023, February's bus and coach deliveries took a hit, with some manufacturers still standing tall above the pack.

January's deliveries were eye-boggling, but February's returned to a more normal state with only 73 deliveries recorded compared to January's 105.

Despite this drop-off, there was still plenty to celebrate as some manufacturers began to record impressive numbers.

When it came to chassis, a changing of the guard saw Scania take the lead. After recording 13 deliveries in the first month of 2023, Scania rebounded with 19 in February to easily surpass January's leader in Yutong, who followed up its 32 deliveries in January with 13 in February. Volvo and Bus & Coach International (BCI) both finished with eight deliveries, while Mercedes-Benz and I-Bus couldn't be split with seven apiece. From there it was an open and varied market, with many companies dropping off after recording stunning starts to the year. Denning, King Long, BLK, BusTech Group and MAN all registered the two units delivered for February, while BYD had the sole delivery to round out the fluctuating sector.

The surprises also kept coming in the bodybuilder market as Yutong narrowly held onto its January lead. Yutong may have dropped from its 32 January deliveries to just the 13 in February, but it was enough to edge out the improving Irizar (12) and perennial leader Volgren (11). After finishing second last month, BCI stayed steady with nine deliveries for February, while I-Bus recorded seven. The rest of the deliveries were shared evenly, with BusTech Group (five) and Custom Denning (four) usurping a logjam of five different manufacturers who shared the nine deliveries.

Casting our eyes to the seating game, more surprises were in store. Yutong may have dominated in January, but it dropped down to third in February with the 11 deliveries. Instead, it was Sege who shot to a comfortable lead with 24 units for the month, jumping clear of Yutong and the second-placed McConnell (17). StyleRide (nine) wasn't too far behind, while APM jumped from the two units in January to seven in February. KBoth King Long and Custom Metro remained on the radar with two units each, while Fainsa recorded the sole delivery. In the evolving seating sector, Yutong's deliveries helped it narrowly edge out its competitors.

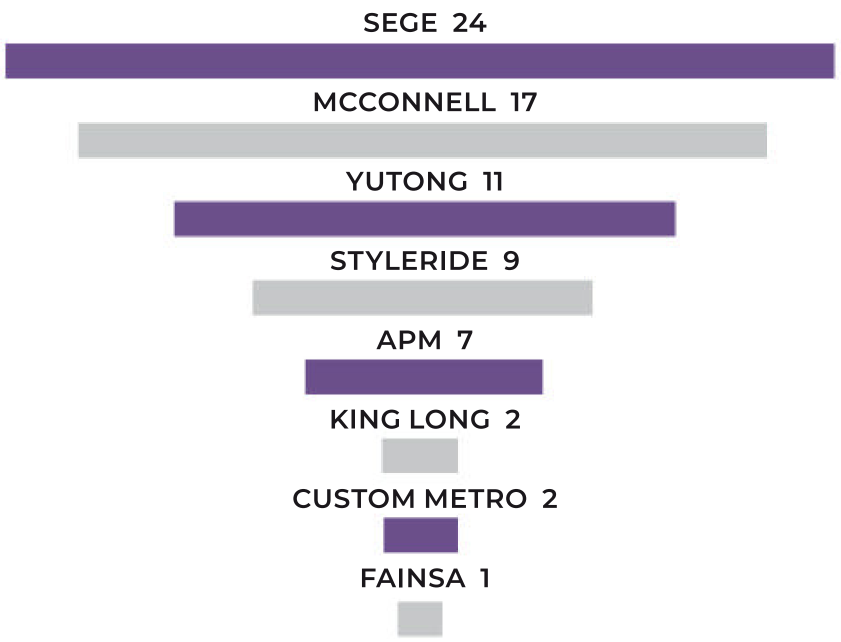
Following a slow start to 2023, Thermo King kicked into gear in the air-conditioning market. Thermo King remained steady, recording 19 deliveries in February after registering 21 in January, while Hispacold improved by four to register 14 deliveries for the month. Cling-Yutong was only narrowly behind with 13 units, staying clear of the next placed Songz (seven). Valoe (six) and MCC (five) both had good months, while King Long, Coachair, Konvekta and Spheros all recorded the two deliveries apiece and Denso claimed the final unit for February.

When looking at the state-based rivalry, it was the maroon of Queensland that emerged on top yet again. After recording 28 units in January, Queensland followed it up with 23 in February, staying ahead of rival New South Wales (19). Victoria slipped to third with 17 deliveries, but stayed well ahead of the next placed South Australia with six. Tasmania jumped up with three deliveries, while the ACT increased to join the plummeting Western Australia with two units each. The final delivery went to the Northern Territory to cover all states and territories of Australia.

Turn overleaf for comprehensive bus and coach delivery information for February. Please note all data is as supplied from manufacturers, at their discretion.

> Casting our eyes to the seating game, more surprises were in store.

Seat delivery units



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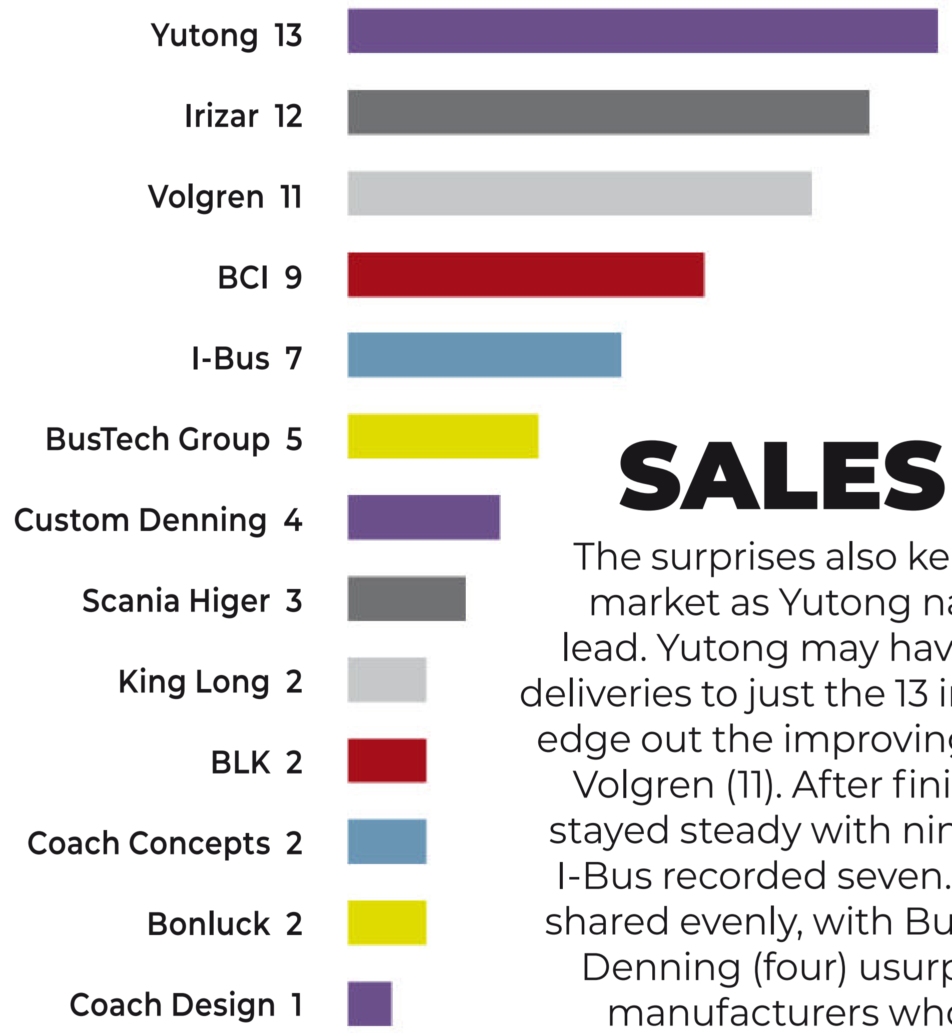

SALES BY BODY

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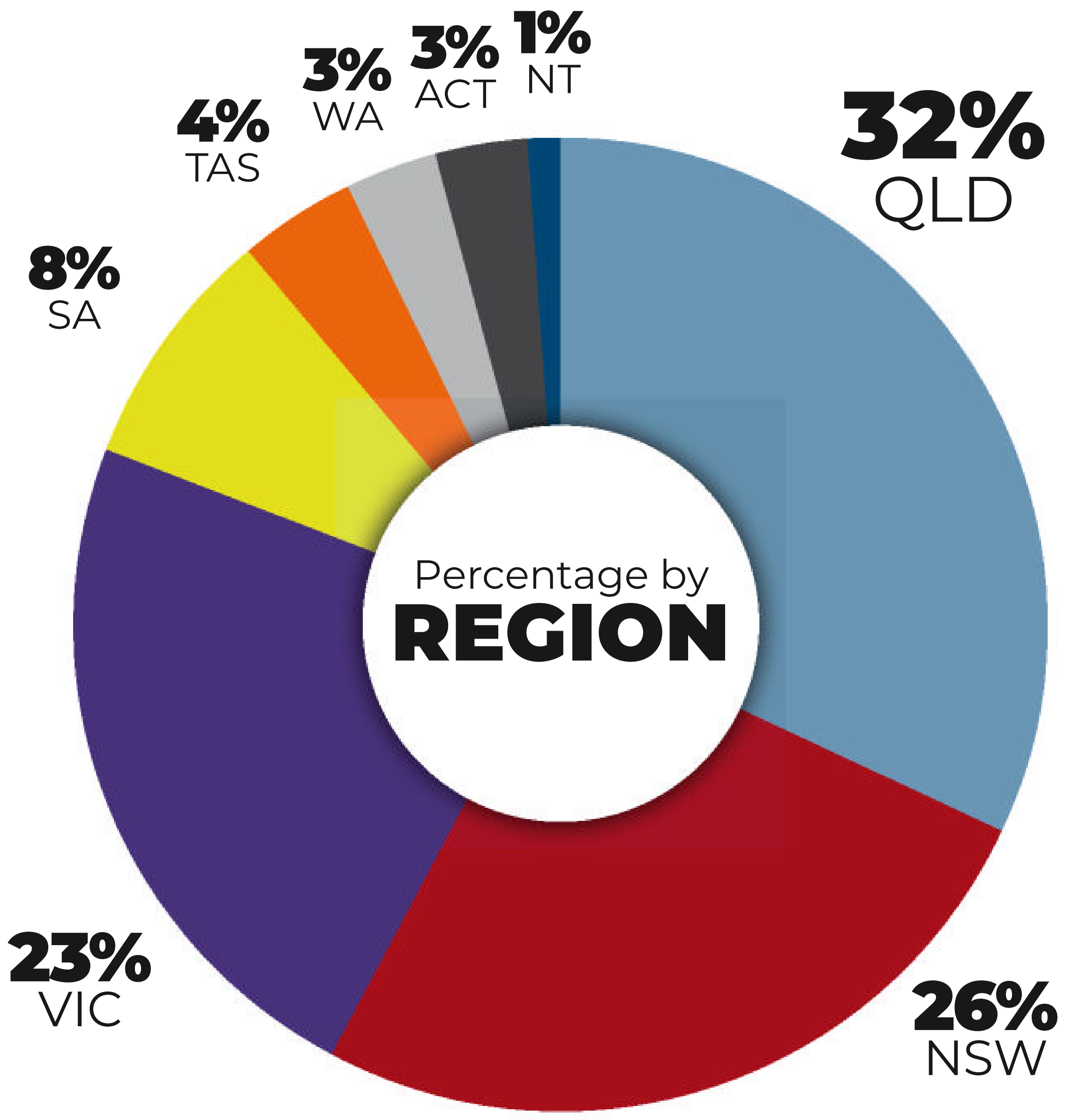
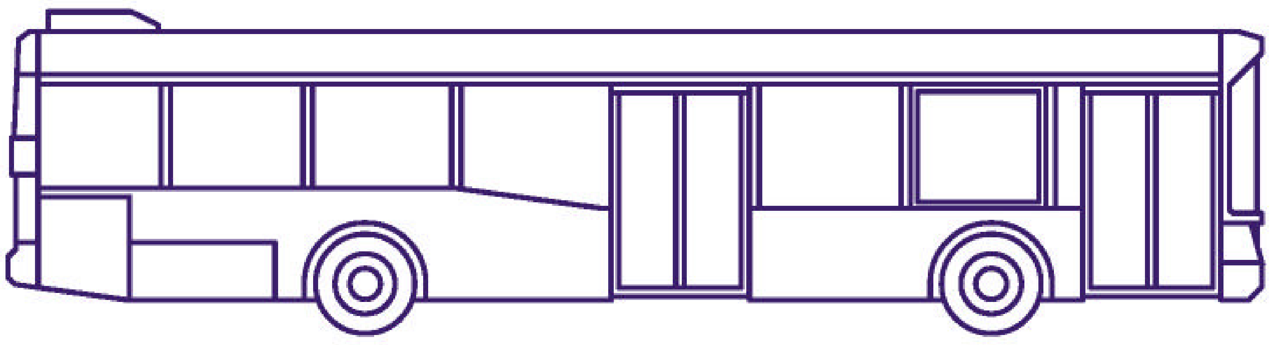


SALES BY AIR-CONDITIONER

Following a slow start to 2023, Thermo King kicked into gear in the air-conditioning market. Thermo King remained steady, recording 19 deliveries in February after registering 21 in January, while Hispacold improved by four to register 14 deliveries for the month. Cling-Yutong was only narrowly behind with 13 units, staying clear of the next placed Songz (seven). Valoe (six) and MCC (five) both had good months, while King Long, Coachair, Konvekta and Spheros all recorded the two deliveries apiece and Denso claimed the final unit for February.

Thermo King	19	King Long	2
Hispacold	14	Coachair	2
Cling-Yutong	13	Konvekta	2
Songz	7	Spheros	2
Valeo	6	Denso	1
MCC	5		



Sales by chassis

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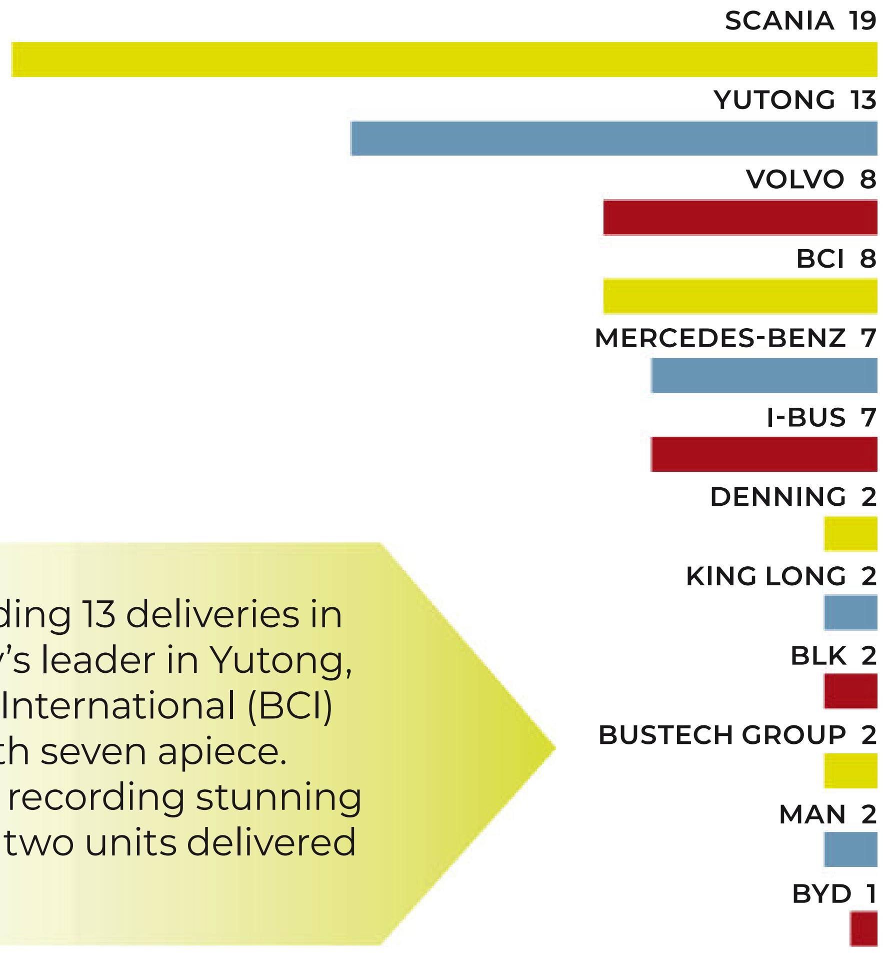

DELIVERIES FEBRUARY

MANUFACTURER, OPERATOR & LOCATION			UNITS	CHASSIS (Model)	BODY BUILDER	ENGINES		
						HP*	Rear / Front	Emissions standard
BCI	Southern Cross Transit	QLD	2	BCI Proma Low Floor	BCI	210	R	Euro 5
	Swan Hill Bus Lines	VIC	3	BCI Fleetmaster	BCI	325	R	Euro 5
	Australian Transit Enterprises	SA	1	BCI Classmaster	BCI	325	R	Euro 5
	LC Dyson's Bus Services	VIC	1	BCI Citirider 10	BCI	250	R	Euro 5
	ATG	WA	1	BCI Fleetmaster	BCI	325	R	Euro 5
BLK	Imperial Pacific Coaches	QLD	1	BLK President 2	BLK	360	R	Euro 5
	Imperial Pacific Coaches	QLD	1	BLK Senator 9	BLK	320	R	Euro 6
BYD	Kinetic Melbourne	VIC	1	D9RA	Volgren	300 kW	R	Zero
BUSTECH GROUP	Metro Tasmania	TAS	2	BusTech XDI	BusTech Group (QLD)	320 / 238.62	R	Euro 6
CUSTOM DENNING	N/A	QLD	2	Denning	Custom Denning	280	R	Euro 5
I-BUS AUSTRALIA	N/A	QLD	1	Isuzu NQR	I-Bus Australasia	190	F	Euro 5
	N/A	NSW	1	Isuzu NQR	I-Bus Australasia	190	F	Euro 5
	N/A	NT	1	Isuzu NQR	I-Bus Australasia	190	F	Euro 5
	N/A	VIC	1	Isuzu NQR	I-Bus Australasia	190	F	Euro 5
	N/A	SA	1	Isuzu NQR	I-Bus Australasia	190	F	Euro 5
	N/A	QLD	1	Isuzu NPS	I-Bus Australasia	155	F	Euro 5
	N/A	TAS	1	Isuzu NQR	I-Bus Australasia	190	F	Euro 5
KING LONG	N/A	SA	1	King Long	King Long	320	R	Euro 5
	N/A	VIC	1	King Long	King Long	320	R	Euro 5
MAN	Coast and Country	QLD	2	IC.19.320.RR8	Bonluck	320	R	Euro 5
MERCEDES-BENZ	N/A	NSW	1	OC500RF E6 1930	Custom	300	R	Euro 6
	N/A	QLD	1	OC500LE E6	Volgren	300	R	Euro 6
	N/A	QLD	1	OC500RF E5 1936	BCI	360	R	Euro 5
	N/A	NSW	1	OC500LE E6	Custom	300	R	Euro 6
	N/A	NSW	1	OC500LE E6	Volgren	300	R	Euro 6
	N/A	QLD	1	O500RS	Irizar	360	R	Euro 5
	N/A	QLD	1	O500RS	Irizar	360	R	Euro 6
SCANIA	Brighton Coach	NSW	2	K 360 IB4X2	Scania Higer	360	R	Euro 6
	Donric Group	VIC	2	K 320 UB4X2	Volgren	320	R	Euro 6
	DPTI - Dept. of Public Transport Infrastructure	SA	2	K 360 UA6X2/2	BusTech Group	360	R	Euro 6
	Hanleys Passenger Service	SA	1	THD K 370C B4x2NB 12.3 CL3	Scania Higer	370	R	Euro 6
	Kinetic Melbourne	VIC	3	K 320H B4x2LB	Volgren	320	R	Euro 6
	Dyson's Bus Services	VIC	1	K 320C B4x2NB	Coach Concepts	320	R	Euro 6
	Dyson's Bus Services	VIC	2	K 320 IB4X2	Irizar	320	R	Euro 6
	Rockleigh Tours	VIC	1	K 320C B4x2NB	Coach Concepts	320	R	Euro 6
	Rockleigh Tours	VIC	1	K 370C B4x2NI	Coach Design	370	R	Euro 6
	School Bus Logistics	WA	1	K 310 IB4X2	Irizar	310	R	Euro 5
	Transport Canberra Operations	NSW	1	K 320 UB4X2	BusTech Group	320	R	Euro 6
	Whitsunday Transit	QLD	2	K 310 UB4X2	Volgren	310	R	Euro 5
VOLVO	Compass Tours	NSW	1	Volvo B8R	Irizar	350	R	Euro 6
	Redeemer Baptist	NSW	1	Volvo B8R	Irizar	330	R	Euro 5
	CDC South East QLD	QLD	1	Volvo B8RLE	Volgren	320	R	Euro 6
	Irizar Asia Pacific	QLD	2	Volvo B11R	Irizar	450	R	Euro 5
	Irizar Asia Pacific	QLD	1	Volvo B11R	Irizar	450	R	Euro 5
	Irizar Asia Pacific	QLD	1	Volvo B8R	Irizar	350	R	Euro 5
	Irizar Asia Pacific	QLD	1	Volvo B8R	Irizar	350	R	Euro 5
YUTONG	N/A	NSW	1	Yutong D12	Yutong	360	R	Euro 5
	N/A	NSW	1	Yutong D7	Yutong	190	F	Euro 6
	N/A	QLD	1	Yutong D9	Yutong	250	R	Euro 5
	N/A	NSW	3	Yutong D7	Yutong	190	F	Euro 6
	N/A	NSW	2	Yutong D12	Yutong	360	R	Euro 5
	N/A	NSW	3	Yutong D7	Yutong	190	F	Euro 6
	N/A	ACT	2	Yutong E12	Yutong	350kwh	N/A	Zero

TOTAL DELIVERIES 73

TRANSMISSION A: Automatic M: Manual AS: Auto-Shift O: Opticruise	TRANS MAKE	AXLES	BODY LENGTH (metres)	AIR-CON (Brand)	NUMBER OF SEATS			APPLICATION					SEATING	SEAT BELTS	WHEEL CHAIR LIFT ACCESS
					Fixed Coach	Recliners	Metro	Long Distance	Charter	City or Route	School	On Demand			
A	ZF	2	8.9	Valeo	29	–	–	–	X	–	–	–	Sege	Y	N
A	Allison	2	12.3	MCC	57	–	–	–	X	–	–	–	Sege	Y	N
A	ZF	2	12.3	MCC	57	–	–	–	–	–	X	–	Sege	Y	N
A	ZF	2	10.1	Thermo King	33	–	–	–	–	–	X	–	Sege	Y	N
A	Allison	2	12.3	MCC	57	–	–	–	X	–	–	–	Sege	Y	N
A	Allison	2	13.2	Valeo	61	–	–	–	X	–	–	–	Sege	Y	N
A	ZF	2	9.8	Valeo	43	–	–	–	X	–	–	–	Fainsa	Y	N
A	BYD	2	12.1	Thermo King	–	–	37	–	–	X	–	–	McConnell	N	Y
A	ZF	2	10-12.9	Thermo King	48	–	–	–	–	X	–	–	Styleride / McConnell	N	Y
A	Allison	2	10.2	Valeo	–	–	37	–	–	X	–	–	Custom Metro	N	N
AS	Isuzu	2	8	Songz	32	–	–	–	–	–	X	–	APM	Y	N
AS	Isuzu	2	8	Songz	32	–	–	–	–	–	X	–	APM	Y	N
AS	Isuzu	2	8	Songz	32	–	–	–	–	–	X	–	APM	Y	N
AS	Isuzu	2	8	Songz	32	–	–	–	–	–	X	–	APM	Y	N
AS	Isuzu	2	8	Songz	32	–	–	–	–	–	X	–	APM	Y	N
AS	Isuzu	2	7	Songz	20	–	–	–	–	–	X	–	APM	Y	N
AS	Isuzu	2	8	Songz	32	–	–	–	–	–	X	–	APM	Y	N
N/A	ZF	2	12	King Long	58	–	–	–	X	–	–	–	King Long	N	N
N/A	ZF	2	12	King Long	58	–	–	–	–	–	X	–	King Long	N	N
A	ZF	2	13.5	Spheros	65	–	–	–	–	–	X	–	Sege	Y	N
A	ZF	2	12.5	Thermo King	57	–	–	–	–	–	X	–	McConnell	Y	N
A	ZF	2	12.5	Thermo King	43	–	–	–	–	X	–	–	StyleRide	N	N
A	ZF Ecolife	2	12.3	Coachair	–	48	–	X	–	–	–	–	Sege	N	Y
A	ZF	2	12.5	Thermo King	–	–	45	–	–	–	X	–	McConnell	N	N
A	ZF	2	12.5	Thermo King	–	–	43	–	–	X	–	–	McConnell	N	N
A	ZF	2	12.3	Hispacold	57	–	–	–	–	–	X	–	Sege	Y	N
A	ZF	2	12.3	Hispacold	57	–	–	–	–	–	X	–	Sege	Y	N
A	ZF	2	12.3	Konvekta	–	54	–	–	X	–	–	–	McConnell	Y	N
Opticruise	Scania	2	12.5	Thermo King	–	–	44	–	–	X	–	–	McConnell	N	N
A	ZF	3	18	Hispacold	63	–	–	–	–	X	–	–	McConnell	N	N
A	ZF	2	12.5	Denso	58	–	–	–	X	–	–	–	StyleRide	Y	N
Opticruise	Scania	2	12.5	Thermo King	–	–	43	–	–	X	–	–	McConnell	N	N
A	ZF	2	12.5	Thermo King	57	–	–	–	–	–	X	–	McConnell	Y	N
A	ZF	2	12.5	Hispacold	–	48	–	–	–	–	X	–	Sege	Y	Y
Opticruise	Scania	2	12.5	Thermo King	57	–	–	–	–	–	X	–	McConnell	Y	N
Opticruise	Scania	2	12.5	Thermo King	57	–	–	–	–	–	X	–	StyleRide	Y	N
A	ZF	2	12.3	Hispacold	41	–	–	–	–	–	X	–	Sege	Y	N
A	ZF	2	12.5	Thermo King	–	–	43	–	–	X	–	–	StyleRide	N	N
A	ZF	2	12.3	Thermo King	–	–	44	–	–	X	–	–	StyleRide	N	N
AS	Volvo	2	12.5	Hispacold	57	–	–	–	X	–	–	–	Sege	Y	N
A	ZF	2	12.5	Hispacold	–	57	–	–	X	–	X	–	Sege	Y	N
A	ZF	2	12.5	Coachair	–	–	48	–	–	X	–	–	McConnell	N	Y
A	Volvo iShift	3	13.5	Hispacold	–	61	–	X	–	–	–	–	Sege	Y	N
A	Volvo iShift	3	14.3	Hispacold	–	61	–	X	–	–	–	–	Sege	Y	Y
A	Volvo iShift	2	12.3	Hispacold	–	48	–	–	X	–	–	–	Sege	Y	N
A	Volvo iShift	2	12.3	Hispacold	–	49	–	–	X	–	–	–	Sege	Y	N
A	Allison	2	12.4	Cling-Yutong	57	–	–	–	X	–	–	–	Yutong	Y	N
A	Allison	2	8	Cling-Yutong	27	–	–	–	–	–	X	–	Yutong	Y	N
A	Allison	2	10	Cling-Yutong	–	39	–	–	X	–	–	–	Yutong	Y	N
A	Allison	2	8	Cling-Yutong	27	–	–	–	–	–	X	–	Yutong	Y	N
A	Allison	2	12.4	Cling-Yutong	57	–	–	–	X	–	–	–	Yutong	Y	N
A	Allison	2	8	Cling-Yutong	27	–	–	–	–	–	X	–	Yutong	Y	N
N/A	N/A	2	12.5	Cling-Yutong	–	–	44	–	–	X	–	–	StyleRide	N	Y

Ticket to Ride

Ten years ago, the first Melbourne Music Bus Tour traversed Melbourne's inner city. In the years that have followed, the bus itself has been central to its stunning success.

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Bus tours

When Victorian and international music personality Mary Mihelakos travels around the world, it's all about music.

After experiencing numerous tourist attractions that revolved around celebrating popular culture and icons from the Beatles, Elvis Presley, Dolly Parton and The Sopranos, she came up with her own idea to bring music tourism to Melbourne.

A critical requirement to get the idea off the ground was a bus.

"I often have big ideas that don't necessarily need a huge amount of money to get started," Mihelakos told ABC.

"After experiencing all of these global music orientated bus and walking tours, I've always thought at the back of my mind that it would be great if Melbourne had one too."

This idea fuelled Mihelakos to introduce a new music tour to the city of Melbourne. Her first step was to engage with councils and operators to find a bus that could be hired to go on these cultural journeys.

The City of Yarra proved pivotal, providing Mihelakos with a bus to use as well as generously offering music-loving and knowledgeable driver Christine Kupke to help guide the inaugural trips.

Mihelakos says Kupke was a vital part of the tour, having grown up in Collingwood and knowing many musicians before retiring as the bus tour's driver recently.

In 2013, the first Melbourne Music Bus Tour hit the road as part of the City of Yarra's Leaps and Bounds music festival that Mihelakos was helping program. The bus tour continued annually at the festival until 2016, when the opening of the Australian Music Vault at the Arts Centre Melbourne in 2018 allowed Mihelakos to continue the bus tour as an extension of the Vault.

The formula is simple. The Melbourne Music Bus Tour picks up passengers in front of the Arts Centre on St Kilda Road before travelling around Melbourne with a special guest onboard.

The bus starts by going down to St Kilda and South Melbourne, winding past the likes of Mushroom Records and the Espy before heading back up through Prahran, South Yarra and Carlton where it passes memorable venues from yester-year.

The tour then winds its way through the cultural centres of Fitzroy, Collingwood, Abbotsford and Richmond, taking in all of Melbourne's mighty music memories.

"There's a lot of music-based tourism globally and I wanted to bring it back to a music city like Melbourne in a unique way," Mihelakos says.

"There are so many great landmarks like Festival Hall and the likes. The best way to see it all is on a bus, as it's fluid and can change routes at any time to avoid traffic and visit these different streets and places in fun ways."

After the bus first debuted in 2013, Mihelakos continued hiring 25-seat buses. But in the 2022/2023 season of the tour, Victorian operator Australiner came to the party with a 30 seater bus, while Mihelakos found a new driver to replace the retiring Kupke.

Mihelakos says the new driver, James Fleming, a member of the Vasco Era as well as supergroup ARC (featuring members of Powderfinger, Jet, You Am I and Spiderbait), is a perfect fit for the role.

"I put a call out on Facebook for a new driver and James responded, I had no idea he was also a bus driver, working for charter bus company Australiner, so it worked out perfectly," Mihelakos says.

Above: James Fleming, Wilbur Wilde and Mary Mihelakos

"He's been a musician and an incredible keyboardist for most of his life, it's a good coincidence that his day job is bus driving."

It's ideas like the Melbourne Music Bus Tour that saw Mihelakos inducted into the Music Victoria Hall of Fame in 2020. She recently grew the tour, running a bus in Geelong to see historical music sites in the city, and has no intentions of slowing down.

"The beautiful part of this bus tour is you can take it anywhere – I'm currently writing bus tours in my head for Sydney and Brisbane like I did with Geelong," Mihelakos says.

"We've been able to sell out every bus tour we've done to date and having buses to run these tours has been a pivotal part of it.

"I'm looking at doing more regional bus routes in the future after our latest season was so successful.

"I've learnt lots about buses and the skill required by drivers to operate in the narrow streets we go down, it's incredible and it makes the tour such a fun day for all involved."

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THE NSW Government is investing $70 million into Western Sydney bus manufacturer Custom Denning to help transition the state's bus fleet to zero-emissions technology, it was announced today.

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HUNDREDS of thousands of bus passengers across NSW will travel for free from Friday, 18 February, as drivers at three bus operator companies step up their fight for fairer pay and conditions, the TWU NSW has announced.

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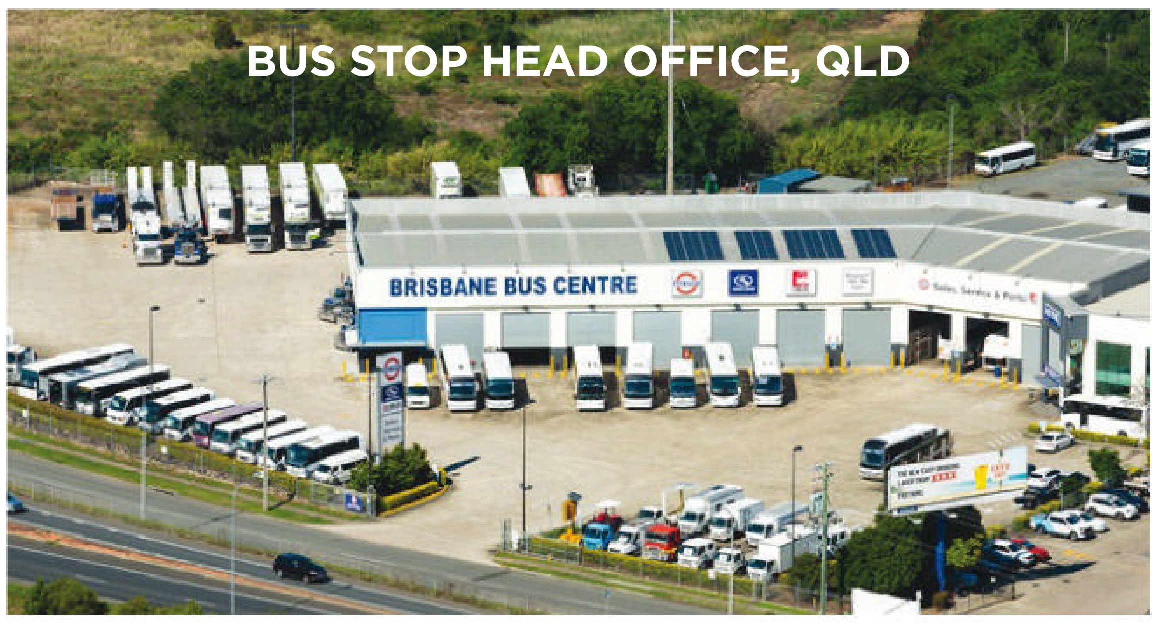
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Stephen Long 0408 271 444
Dick White 0419 271 444
Pete White 0410 644 828

VIC | SA | TAS
Guy Pex
0498 028 245

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